



**ASHEVILLE-BUNCOMBE
TECHNICAL INSTITUTE
1978-1979**

This catalog should not be considered a contract between Asheville-Buncombe Technical Institute and any prospective student. All charges for tuition and fees are subject to change as required by the Board of Trustees. Also, curriculum offerings may be altered to meet the needs of individual departments.

An Equal Opportunity Educational Institution

COVER: Shown in the background is the new Learning Resources Center which houses the Library and the Educational Satellite Program. The back cover pictures a lone culinary student finding his way to class through a sea of cars.

ASHEVILLE-BUNCOMBE TECHNICAL INSTITUTE

340 Victoria Road

Asheville, N. C.

Recognized and Approved by
North Carolina State Board of Education
North Carolina Department of Community Colleges
Division of Vocational Rehabilitation
and for Veterans Participation

Member of
American Association of Community and Junior Colleges
North Carolina Department of Community Colleges
Student Services Personnel Association
N.C.A.C.C. Instructional Administrators
Association of Community College Business Officials
American Library Association
Learning Resources Association

Accredited By
North Carolina Board of Nursing
American Society of Clinical Pathologists
American Medical Association
American Dental Association
Southern Association of Colleges and Schools

Catalog of Courses Day and Evening School

Volume 16

1978-1979

1978

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INSTITUTE CALENDAR 1978-79

FALL QUARTER

Registration.....	August 30, 31, September 1
Classes Begin.....	September 5
Last Day for Registration.....	September 11
Last Day of Examinations.....	November 20
Total Class Days.....	55
Instructor Work Days.....	November 21, 22
and In-Service Education	
Registration for Winter Quarter.....	November 15, 16, 17
Holidays	
Thanksgiving.....	November 23, 24

WINTER QUARTER

Classes Begin.....	November 27
Last Day for Registration.....	December 1
Last Day of Examinations.....	February 22
Total Class Days.....	55
*Instructor Work Days.....	February 23, 26
Registration for Spring Quarter.....	February 15, 16
Holidays	
Christmas.....	December 20-29
New Years.....	January 1
*Instructor Vacation.....	February 27, 28, March 1, 2

SPRING QUARTER

Classes Begin.....	March 5
Last Day for Registration.....	March 9
Last Day of Examinations.....	May 22
Total Class Days.....	55
Instructor Work Days.....	May 23, 24, 25
Registration for Summer Quarter.....	May 17, 18
Holidays	
Good Friday.....	April 13
Easter Monday.....	April 16
Instructor Vacation.....	May 28, 29, 30, June 1

SUMMER QUARTER

Classes Begin.....	June 4
Last Day for Registration.....	June 8
Last Day of Examinations.....	August 20
Total Class Days.....	55
Instructor Work Days.....	August 21, 22, 23
Graduation.....	August 24
Registration for Fall Quarter.....	August 29, 30, 31
Holidays	
Independence Day.....	July 4
Labor Day.....	September 3
Instructor Vacation.....	August 27, 28, 29, 30, 31

*Up to four days lost because of inclement weather may be made up at this time.

EVENING SCHOOL CALENDAR 1978-79

FALL QUARTER

Registration	August 30, 31
Fees may be paid	August 30, 31, Sept. 5
Last Day for Registration	September 11
Last night of Classes	November 20
Total Class Nights	44

Holidays

Thanksgiving..... November 21-26

WINTER QUARTER

Registration.....	November 1-20
Fees may be paid	November 13-16, 27
Classes Begin.....	November 27
Last day for Registration	December 1
Last night of Classes.....	February 22
Total Class Nights	44
*Inclement Weather Make-up Nights	February 26-March 1

Holidays

Christmas..... December 19-31
New Year's..... January 1

SPRING QUARTER

Registration.....	February 1-22
Fees may be paid	February 12-15, March 5
Classes Begin	March 5
Last day for Registration.....	March 9
Last night of Classes.....	May 21
Total Class Nights	44

Holidays

Easter Monday..... April 16

SUMMER QUARTER

Registration.....	May 1-21
Fees may be paid.....	May 14-17, June 4
Last Day for Registration	June 8
Last night of Classes.....	August 20
Total Class Nights	44
Graduation	August 24

Holidays

Independence Day..... July 4

*Up to four nights lost because of inclement weather may be made up during this period.

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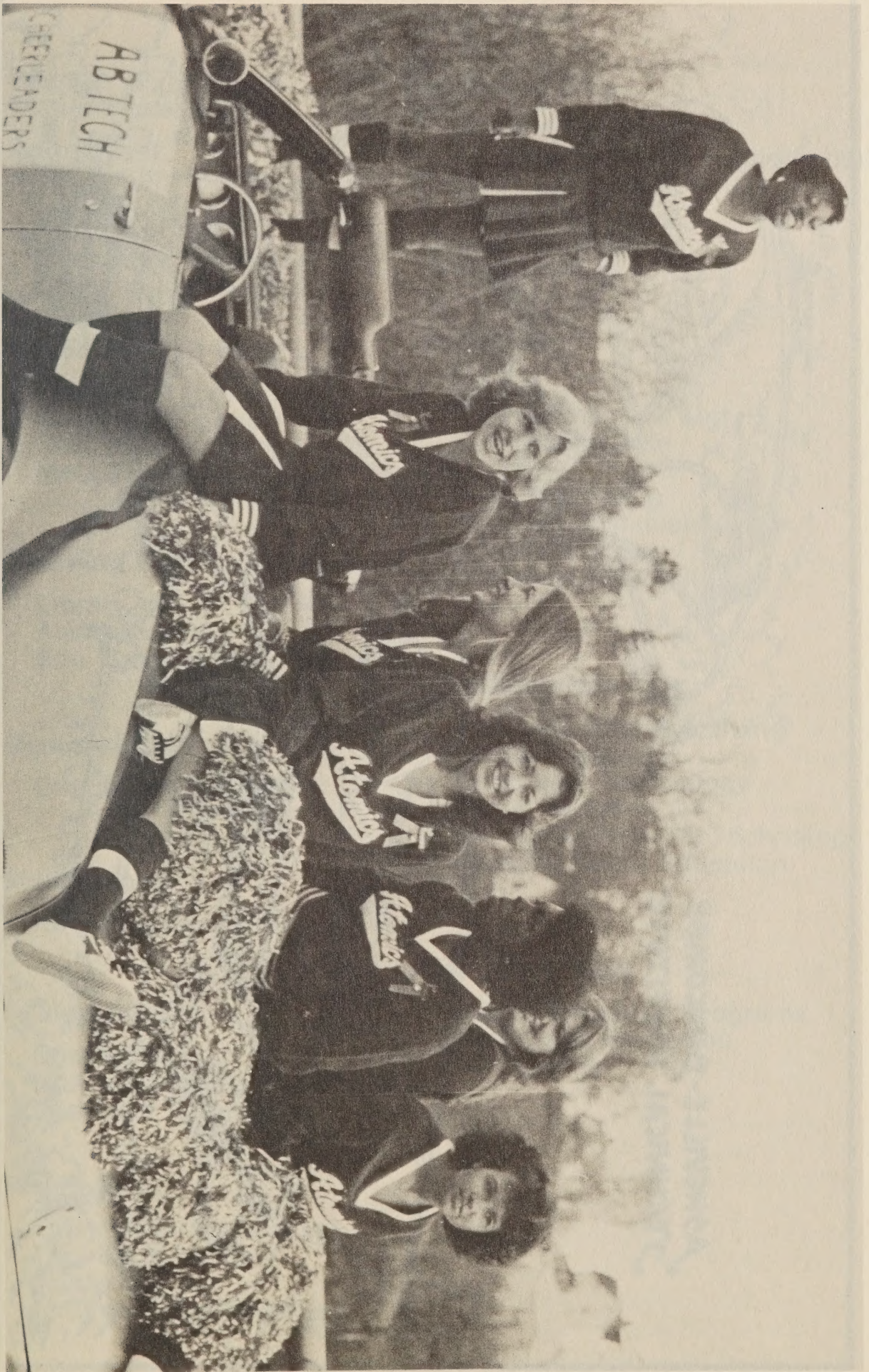
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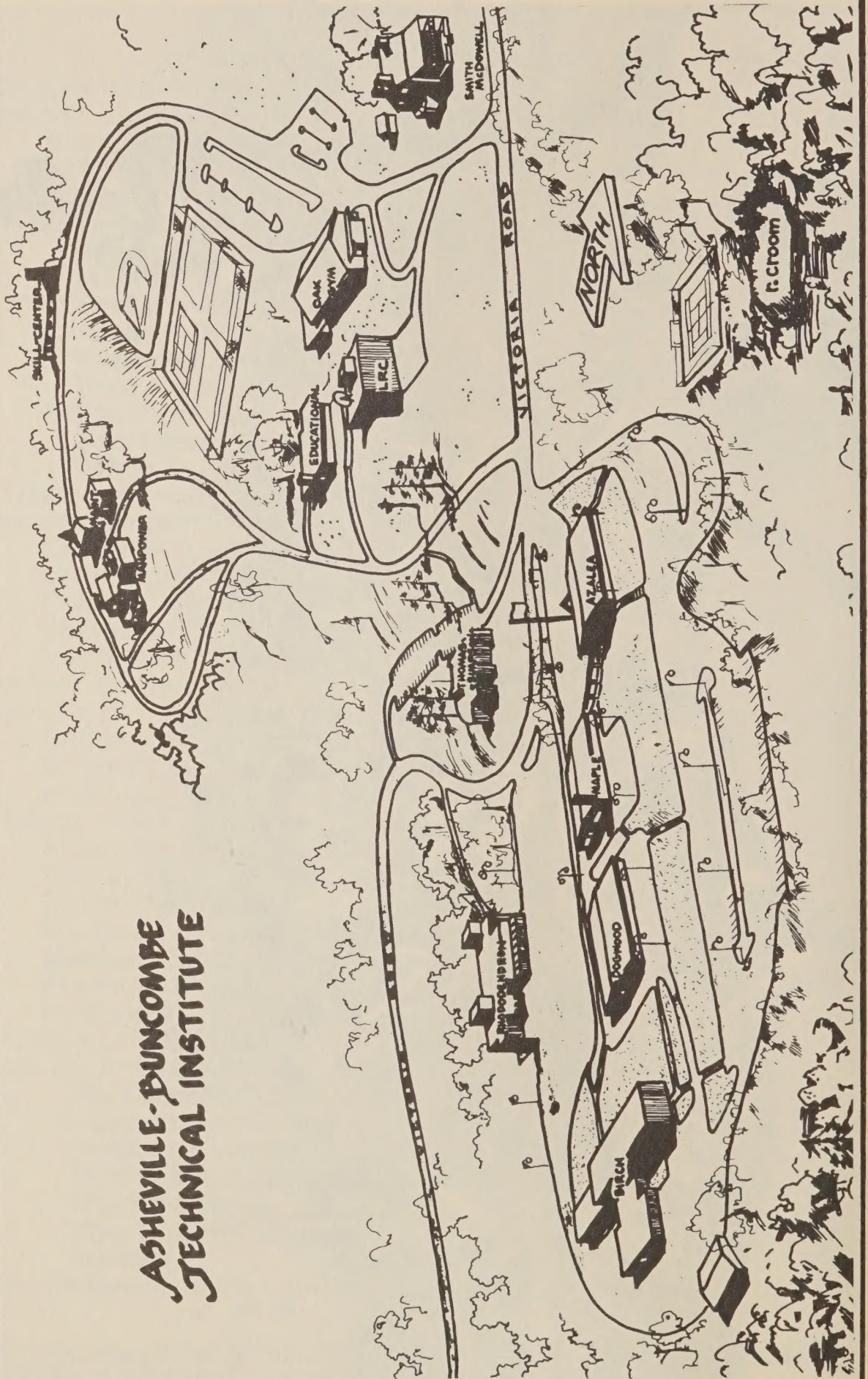
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*Curriculums offered in both day and evening hours. Enrollment will determine offering or continuing a curriculum.

**Offered evenings only.



ASHEVILLE-BUNCOMBE TECHNICAL INSTITUTE



BUILDINGS LEGEND

Thomas W. Simpson Administration Bldg.

President
Offices of Instruction
Student Services
Business Office
Continuing Education
Elevated Lecture Room

Educational (I) Bldg.

Learning Laboratory
General Education
Civil Technology
Mechanical Technology

Learning Resources Center

Library
Audio-Visuals
Edu. Satellite Program

Gymnasium

Director of Athletics

Skills Center

New Industry Training

Azalea Bldg.

Bookstore
Drafting & Design Technology
Chemical Technology

Maple Bldg.

Electronics Technology
Tool & Die Making
Machine Shop
Automobile Mechanics

Dogwood Bldg.

Physics Department
Air Conditioning & Refrigeration
Building Construction
Welding
Diesel Engines
Snack Bar

Birch Bldg.

Library
Hotel Restaurant Mgt.
Culinary Science
Cafeteria
Data Processing
Business Administration
Office Education
English & Social Studies

Rhododendron Bldg.

Associate Degree Nursing
Dental Hygiene
Radiologic Technology
Dental Assisting
Medical Laboratory Technology
Practical Nurse Education

Manpower Bldg.

Human Resource Programs
Continuing Education
Programs

HISTORY

The 1963 General Assembly passed a law placing industrial education centers under the direction of the newly created Department of Community Colleges and governed by a local board of trustees. Soon after its establishment, the Asheville board of trustees requested that the local industrial education center be converted to a technical institute with power to award Associate in Applied Science degrees. This request was approved by the State Board of Education in January, 1964, and the name of the center was changed to Asheville-Buncombe Technical Institute.

The first major expansion of facilities occurred in 1963 when the County obtained a \$200,000 loan for a third building. A fourth building, costing \$712,000 and utilizing state and federal monies, was added in 1966. In addition to classrooms and a library, this unique facility houses a motel and fully equipped kitchens and a cafeteria for use in the hospitality education curriculums. A 1.4 million dollar building program was completed in 1971 which provided a multi-story facility to house allied health instruction and an administration building. In 1974 the purchase of seventy eight additional acres and three buildings was completed. The campus now has ten buildings and one hundred six acres.

LOCATION

The Asheville-Buncombe Technical Institute is located in modern buildings on a one hundred six acre tract of land off Victoria Road. The entire 196,000 square feet of floor space is specifically designed to house a Trade and Technical program. Included in the buildings are well-lighted classrooms, large laboratories, shops equipped with the most recent test and production type equipment and a gymnasium.

STATEMENT OF PURPOSE

The fundamental purpose of Asheville-Buncombe Technical Institute is to prepare students through practical education to meet the demands of changing technology and develop responsible attitudes and understanding necessary to function in a modern society.

Programs are designed to provide profitable skills for the untrained, augment the knowledge of those already trained, and offer the opportunity for retraining. Other programs enable adults who do not have primary, elementary, or secondary educational achievement to attain these levels. Interwoven is a belief in individual worth and a respect for individual differences.

In summary, Asheville-Buncombe Technical Institute shall serve as the occupational education link between the individual need and the employment opportunities.

PHILOSOPHY

It is the philosophy of Asheville-Buncombe Technical Institute that the cumulative efforts of the Institute program must serve the educational needs of the individual within the defined purpose and scope of the Institute program. Essential to this belief are the following:

We believe that the Institute and the programs exist to serve the students and that all coordinated efforts should be devoted to meeting their needs. Our commitment includes recognizing the individual worth of each student, accepting him at the level we find him, and assisting him in every way possible to attain his goals and objectives.

The Institute subscribes to the belief that in the decision-making process it is in keeping with the principles of democracy to involve those who are affected by the decision. Consequently, the students, faculty, staff, and the community must be considered in the formulation of the Institute policies and practices and are invited to participate.

In order to assure all an equal opportunity to learn and improve skills, to develop social abilities and responsible attitudes, our doors will never be closed to anyone of suitable age who can profit from our programs. We must take the people where they are and carry them as far as they can go within the purpose and capabilities of the Institute. Limitations placed on the offerings and programs by facilities, staff, and requirements of certifying agencies should be the only factors restricting the total fulfillment of this phase of the Institute philosophy. The development of communicative skills and the effective creative use of leisure time will be reflected in Institute programs.

Inherently involved in the concept of the Open Door Policy and in the formulation of realistic goals are the processes of Guidance and Counseling. The Institute believes that adequate guidance and counseling services should be readily available to every applicant and should continue to be available to all students throughout their educational careers. We believe this service can best be provided by a coordinated effort of the personnel of student services and of faculty members. Institute personnel must realize that our educational programs and facilities may not meet the needs of every applicant—that is, we cannot be all things to all people. In such cases, Institute personnel should be capable of assisting the applicant in the selection of an appropriate social or educational agency designed to meet his particular needs.

The Institute is committed to the maximum utilization of its resources and to the greatest possible efficiency in their use. Consequently, many curriculums and many continuing education courses are offered during the evening hours, or by special arrangement, as well as during the day.

Asheville-Buncombe Technical Institute serves as an essential member of the regional economic development team. The Institute is primarily concerned with "Manpower" for economic development and strives to keep curriculums and courses in the mainstream of community needs.

The program of instruction should be constantly responsive to the needs of the students as well as present and prospective employers. It should thus be sufficiently flexible, both in curriculum and facilities to meet needs under changing conditions.

The Institute believes that self-evaluation and institutional research provide the most effective base for responsible decision-making.

In our commitment to education, Asheville-Buncombe Technical Institute will not limit itself to the development of occupational skills, but will also be dedicated to the development of the total individual.

Periodic reviews of our Institute philosophy are essential in order to provide an education that is flexible, progressive, and sensitive to the changing needs and desires of our clientele.

DIVISIONAL OBJECTIVES

Engineering Technology: The Engineering Technology Division provides a practical degree-granting education involving scientific and mathematical theory with specialized training in some specific branch of engineering technology to enable the graduate to apply established engineering principles in his field.

Business Education: The objective of the Business Education Division is to provide practical dynamic college-level business training with emphasis on the development of desirable professional attitudes.

Allied Health: The Health Sciences provide qualified students with opportunities at the post-secondary level to acquire knowledge, skills, and attitudes which will enable them to become safe and effective members of the health care team.

Hospitality Education: The Hospitality Education Division provides professionally oriented, post-secondary and college level training in various selected facets of the hospitality industry. These curricula are designed to reflect the everchanging skills and attitudinal demands and needs of the industry.

Vocational-Industrial Education: Vocational-Industrial Educational Curricula are diploma or technical diploma granting programs taught at the post-secondary level. They are designed to give the student practical education and applied training in the manipulative skills peculiar to a specific trade.

Continuing Education: Continuing Education will provide vocational education opportunities for the unemployed, upgrading courses for those already employed, adult basic education for those desiring a higher educational level, and certain avocational courses for individual enrichment.

General Education: The General Education Division contributes to the growth of students for productive involvement and participation in a technological society by providing on the post-secondary level essential communicative and quantitative skills as well as an understanding of human relations and man's environment.

EVENING CURRICULAR PROGRAMS

Most of the same curricular classes offered in the day are offered on a part-time basis in the evening. Classes meet on campus Monday through Thursday evenings, starting at 6:30 P.M. Individually selected classes may be undertaken by "Special Schedule" students, providing the proper prerequisites have been adhered to.

Evening curricular classes qualify students for the same degree or diploma as full-time day classes. Students who enroll in these programs generally work at full-time jobs during the day.

CONTINUING EDUCATION

The concept of continuing education during the entire lifetime of the individual is made available by the adult education classes at Asheville-Buncombe Technical Institute. These include: vocational courses for pre-employment and on-the-job training; adult basic education classes for individuals desiring a higher educational level; a management development program for industrial and business personnel; hospitality education for the tourist, hotel-motel, and restaurant industry; a manpower development program for the unemployed and underemployed and a general adult and community services program to offer the general public a variety of avocational courses for personal enrichment.

All continuing education classes are non-curriculum, vary in length, are held wherever space is available, are conducted both day and evening, and are taught by instructors selected by the Dean and Directors of the continuing education program.

Any adult, eighteen years of age or older may enroll in these courses. Exception: Individuals sixteen years of age and older and not officially enrolled in public schools may register for adult basic education.

Usually, the only cost for these courses is a \$5.00 registration fee and in some, a certificate is issued by Asheville-Buncombe Technical Institute and the Department of Community Colleges.

ADULT BASIC EDUCATION

An important area in continuing education is that of adult basic education. The program is designed for any adult who has not completed an elementary or high school education. Free classes offer the opportunity to study basic reading and writing, English, reading comprehension, math, social studies, and science. The program can assist an adult in passing the equivalency (GED) test.

Classes usually meet two nights a week, and a person may enroll at any time.

All materials are designed for adults with emphasis on individual needs and interests. At all levels, instruction is closely related toward helping the student to better meet his adult responsibilities.

Continuous classes are held Monday and Wednesday evenings on campus and at various times throughout the Buncombe-Madison County area. Additional classes can be started in most any location where a sufficient number of interest adults can be assembled.

HIGH SCHOOL EQUIVALENCY

An adult who has not completed high school may take a series of General Education Development (GED) tests. Upon attaining a passing score of 225 points with no single test score below 35, a High School Equivalency Certificate will be awarded. This certificate is generally accepted on a basis equal to a high school diploma for employment, promotion, or further education.

The G.E.D. tests cover five broad areas: English expression, literature, mathematics, social studies, and natural science. They are administered at the Institute.

The following requirements must be met before taking the G.E.D. tests:

1. Minimum age: 19, or 18 if out of regular school at least six months.
2. Residence: current North Carolina resident.
3. Make application for tests on official blanks that are available at A-B Tech.
4. Cost: There is no cost for testing.
5. Have a valid vocational, educational, or other purpose in applying.

An appointment must be made through the Chief Examiner (Learning Lab).

HUMAN RESOURCES DEVELOPMENT PROGRAM

The human resources development program of A.B.T.I. is designed to assist the unemployed individual obtain employment and to help the under-employed person find a better job. This is accomplished by eight weeks of instruction including adult basic education with emphasis on helping those who do not have a high school diploma obtain the G.E.D., and an equal amount of human resources development training to teach the trainee how to apply for a job, methods of keeping the job, how to communicate and cooperate with fellow employees, etc.

The trainees are selected, based on their needs, their sincerity, their work history, and their motivation and attitude. The applicant must be at least eighteen years of age, but young high school graduates are generally not accepted.

LEARNING LABORATORY

The purpose of the Learning Laboratory is to facilitate an individual toward reaching educational or avocational objectives through counseling and individualized programmed instruction.

With programs for any level of comprehension, the Learning Laboratory is designed for the following goals:

1. Provide the opportunity for students to increase their level of learning before entering a college or university.
2. Help prospective students increase academic skills in math, English, and reading.
3. Help individuals prepare for the General Education Development Test which is administered in the Learning Laboratory.
4. Provide the High School Equivalency Program for Veterans who have not completed high school. They may enroll in the Learning Lab for 900 hours of educational benefits.
5. Give instruction to anyone eighteen years of age or over, regardless of educational background, in any of over one thousand academic and general interest programs, covering materials from the first grade through senior college level.
6. Provide the Adult High School Diploma Program so that persons who did not finish high school may complete unit requirements for graduation by working in the Learning Lab. The Institute has an agreement with the Asheville, Buncombe, and Madison Boards of Education to award a high school diploma when requirements for graduation have been met.
7. Provide pre-requisite courses in chemistry, biology, and algebra for prospective students who need to fulfill entrance requirements for the Associate Degree Nursing and Dental Hygiene Programs.

Since there are no formal classes, the student may begin at any convenient time and proceed at his own learning rate. An instructor is always available to give assistance and to determine if the student is progressing satisfactorily.

The Laboratory is open from 8:00 a.m. to 9:15 p.m., Monday through Thursday and from 8:00 a.m. to 4:00 p.m. on Friday.

There is no charge for study in the Learning Laboratory.

LIBRARY

A technical library is maintained by the Asheville-Buncombe Technical Institute for use by faculty and students. Library resources are also available to representatives of industry, and, in general, to any member of the community desiring to use its facilities. The library contains scientific and technical volumes as well as subject matter materials in all related fields and current magazines and journals. New volumes are being added every quarter in order to keep abreast with technological advancements. In addition, a very fine collection of fiction, paperbacks, and books of general reader interest is provided for recreational reading. The library is open both day and evening.

Hours: Monday-Thursday	8:30 A.M.-10:00 P.M.
Friday	8:30 A.M.- 4:30 P.M.
Closed each day	4:30 P.M.- 5:30 P.M.

ADMISSION PROCEDURE AND STUDENT INFORMATION

EQUAL OPPORTUNITY STATEMENT

Asheville-Buncombe Technical Institute does not discriminate on the basis of sex, race, ethnic origin, age or handicap in the educational programs or activities which it operates. The Institute is required by Title IX of the Education Amendment of 1972 not to discriminate on the basis of sex, and by other Federal legislation not to discriminate on the basis of race or ethnic origin. The requirement not to discriminate in education programs and activities extends to employment in the institution and to admission to its programs. Inquiries concerning the application of Title IX and other Federal non-discrimination legislation to Asheville-Buncombe Technical Institute should be referred to:

Joseph B. Edwards, Jr., Director of Personnel
Room 204, Thomas W. Simpson Administration Building
Asheville-Buncombe Technical Institute
340 Victoria Road, Asheville, NC 28801
Telephone (704) 254-1921 Extension 35

GENERAL ENTRANCE REQUIREMENTS

Asheville-Buncombe Technical Institute has an "OPEN DOOR" admission policy. High school graduation or equivalent is normally required for admission to any curriculum; however, there are also programs for non-graduates 18 years of age or older.

Placement into a specific course of study is based upon standards which will help to assure the applicant's success in that course of study. Those who do not yet possess the background required by the course of study of his choice may be enrolled in preparatory courses designed to provide this background.

Applicants should be in good health with no impairment of vision or other physical defect which would restrict his ability in a particular field of work. A complete physical examination may be required.

Educational background, interest, motivation, experience and aptitudes will be considered when an application is submitted to the Institute.

SPECIFIC REQUIREMENTS

Business Education	see page 32
Engineering Technologies	see page 44
Health Occupations	see page 60
Hospitality Education	see page 55
Vocational Programs	see page 77

ADMISSION PROCEDURE

Persons wishing to enroll at the Institute must complete the entire application process. This consists of the following steps:

1. Submit an application form.
2. Obtain a transcript of credits from the last school attended.
3. Complete the battery of admission and placement tests administered by the Institute.
4. Have a personal interview with the student services staff and in some cases with a representative of his major department.

Upon receipt of the completed application form the Institute will schedule a date for test administration and notify the applicant by mail. Transcripts should be mailed from the school directly to the Institute on the transcript form in use by that school.

Upon completion of the above procedure, each applicant will receive written notification of the action taken by the admissions committee.

TRANSFER CREDIT

Asheville-Buncombe Technical Institute will accept credit for parallel work completed in other North Carolina Technical Institutes or Community Colleges and institutions accredited by a regional accrediting agency. Applicants who seek admission with advanced standing should make regular application and submit transcripts of work from other institutions. No credit will be granted for work below a "C" or the average grade given by the other institution.

CREDIT BY EXAMINATION

Students who can provide evidence that they may be proficient in a subject may request credit by examination. A written request must be made to the proper Department Chairperson on a form obtained from the Registrar.

The examination may be oral, performance, written, or a combination of these methods. Students failing the examination may not repeat the examination and will be expected to obtain credit by taking the course.

To receive credit by examination, the score must be above average. The decision of the examining instructor will be final. No quality points will be awarded for credit by examination.

Because of specific requirements, credit for certain courses may not be received by proficiency examination. The courses which may not be challenged by examination are marked with an asterisk in the course description section of the catalog.

AUDITING COURSES

Students who wish to audit courses must register through regular registration procedures and must have approval of the department chairperson responsible for the particular course. Audit students do not receive credit but must adhere to attendance regulations. An audit intention cannot be changed to credit course after the "add-drop" day nor can credit courses be changed to audit courses. Audit work cannot be used toward diploma or degree requirements. (Audit students will enter class after all curriculum students have been registered, precluding audit students from taking the place of curriculum students).

ACADEMIC PROBATION AND SUSPENSION

1. A student will be placed on academic probation if the following average is not maintained:

END OF QUARTER	MINIMUM CUMULATIVE QUALITY POINT AVERAGE
1	1.50
2	1.75
3 and following	2.00

2. A student will be suspended from the program if the cumulative quality point average is below:

- (a) the minimum requirement indicated above at the end of one quarter on probation.
- (b) 1.50 after attempting a minimum of 30 hours. This regulation also applies to students who have not declared a major. A student may appeal to the Admissions Committee for readmission. Appeals must be made in writing within two school days of notice of suspension. After receipt of the appeal, the Admissions Committee must meet and act within three school days.

3. Students placed on probation or suspension will be informed and counseled by the following means:

1. Department Chairperson identifies and counsels the student by the first day of classes for the next term.
2. Student Services notifies the student in writing.
3. Students are counseled by Student Services.

CONDITIONS OF PROBATION

In an effort to assist the student in his academic progress, the following conditions of probation have been developed:

1. A student who is placed on probation will not participate in extracurricular activities. Extracurricular activities shall consist

of: (a) Student Government Officer (Elected); (b) Officers of Curriculum Clubs; (c) Yearbook Officers; (d) Off-Campus Activities That Require Missing More Than One Class Day in Succession; (e) Activities in Which the Student Officially Represents the Institute.

2. A student on probation will not participate in the Institute's inter-collegiate athletic program.
3. The Department Chairperson may require a reduced course load and must approve the course schedule for the following quarter.
4. Academic progress must be reviewed with the Department Chairperson at mid-quarter.

CONDITIONS OF SUSPENSION

For those students who have not maintained satisfactory progress in their current curriculum, the following conditions of suspension apply:

1. Suspension from the curriculum is for a minimum of one quarter. This condition also applies to students who have not declared a major.
2. A suspended student may be referred to the Learning Laboratory for basic academic preparation.
3. A student suspended from one curriculum may apply for another curriculum. Admission requirements of the "new" curriculum must be met and permission of its Department Chairperson granted.
4. A student suspended from a curriculum may apply to re-enter the same curriculum and will be considered as a new applicant.

FEES

ADVANCE REGISTRATION FEE \$ 15.00

Required of all full-time day students and full curriculum evening students as a condition of acceptance and enrollment. (This fee is paid at the time of acceptance and is credited to the fall quarter tuition payment.)

TUITION

Full-time students per quarter.....	\$ 39.00
Non-Resident of N.C.	\$198.00
(12 or more credit hours)	
Part-time per credit hour per quarter.....	\$ 3.25
Non-Resident of N.C.	\$ 16.50
(less than 12 credit hours)	

LATE REGISTRATION FEE..... \$ 5.00

There are no fees for senior citizens 65 years of age or older.

STUDENT ACTIVITY FEE

Full-time day students	per year	\$ 20.00
Full curriculum evening students	per year	\$ 7.00

Full-time day students enrolling for less than the full school year will pay an activity fee on the following basis and may purchase a yearbook separately, if extra copies are available:

Fall Quarter.....	\$5.00
Winter Quarter.....	4.00
Spring Quarter	4.00

ADDITIONAL COSTS

In addition to the fees shown above, a beginning student should be prepared to incur additional approximate expenses for their first quarter as follows:

Students taking drafting courses should anticipate an instrument and equipment cost of \$15.00 to \$40.00 at the beginning of their first drafting course.

It is recommended that students enrolling in the Business Division, Technical Division and some Departments of the Vocational Division purchase a small electronic calculator. Students should consult with their Department Chairman or a member of the Math Department prior to the purchase of a calculator. Calculators will not be permitted in MAT 100, MAT 105 or MAT 1101.

BUSINESS ADMINISTRATION

Books.....	\$ 55.00
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ELECTRONIC DATA PROCESSING

Books.....	\$ 50.00
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OFFICE EDUCATION

Books.....	\$ 45.00
Supplies.....	10.00

CHEMICAL ENGINEERING TECHNOLOGY

Books.....	\$ 55.00
Supplies.....	30.00

CIVIL ENGINEERING TECHNOLOGY

Books.....	\$ 40.00
Calculator	\$20-\$55

DRAFTING & DESIGN TECHNOLOGY

Books.....	\$ 65.00
Drafting Instruments	45.00
Calculator	\$20-\$55

ELECTRONICS TECHNOLOGY

Books.....	\$ 55.00
Calculator	\$20-\$55

MECHANICAL ENGINEERING TECHNOLOGY

Books.....	\$ 65.00
Supplies.....	28.00
Calculator.....	\$20-\$55

CULINARY TECHNOLOGY

Books.....	\$ 40.00
Uniform Purchase	30.00

HOTEL-RESTAURANT MANAGEMENT

Books.....	\$ 45.00
Uniform Purchase	30.00

ASSOCIATE DEGREE NURSING

Books.....	\$220.00
Uniforms.....	82.90
Shoes, Hose & Scissors	35.00

DENTAL HYGIENE

Books.....	\$125.00
Lab Coat.....	13.00
Name Pin	1.25
JADHA Dues	5.00
Instruments (at the end of first quarter).....	200.00

DENTAL ASSISTING

Books.....	\$140.00
Uniforms (two)	70.00
White Shoes	20.00
White Hose.....	10.00
Lab Coats	15.00
Name Pin	1.25
ADAA Membership.....	10.00

MEDICAL LABORATORY TECHNOLOGY

Books.....	\$ 65.00
Uniforms (two)	34.00
White Shoes	12.00

PRACTICAL NURSE EDUCATION

Books.....	\$110.00
Uniforms.....	75.00
Shoes, hose, and scissors	35.00

RADIOLOGIC TECHNOLOGY

Books.....	\$200.00
Uniforms (4 @ \$30.00)	120.00
White Shoes	25.00
White Hose or Sox	10.00

AIR CONDITIONING AND REFRIGERATION

Books.....	\$ 65.00
Tools	200.00

AUTOMOTIVE MECHANICS

Books.....	\$ 30.00
Uniforms.....	16.00
Hand Tools.....	70.00

BUILDING CONSTRUCTION	
Books.....	\$ 55.00
Tools	250.00
DIESEL ENGINES AND HYDRAULIC SYSTEMS	
Books.....	\$ 45.00
Uniforms.....	16.00
Hand Tools.....	100.00
MACHINE SHOP	
Books.....	\$ 45.00
Tools	70.00
TOOL AND DIE MAKING	
Books.....	\$ 30.00
Drafting Equipment.....	15.00
WELDING	
Books.....	\$ 35.00
Goggles	3.00
Tools	30.00

BOOKSTORE

A bookstore is operated by the Institute for the convenience of students and staff members to provide required textbooks and materials.

Textbook costs vary considerably depending upon the curriculum and quarter a student is enrolled in. Book costs vary from year to year because of price changes, curriculum changes, and deletion and adoption of required books.

All potential graduates are required to pay a graduation fee before attending graduation exercises in August. Graduation fees and cap and gown orders are collected by the bookstore in May. Graduation invitations are also made available in the bookstore.

STUDENT INSURANCE

Certain risks are inherent in any work involving regular contact with mechanical and electrical equipment. While stringent precautions will be taken to insure safety, it is felt to be in the interest of all students to provide some measure of insurance protection.

A group policy, providing the desired insurance protection, will be maintained in effect by the Institute and all students will be REQUIRED to subscribe to such coverage. The cost of accident insurance to the student will be approximately \$3.25 per year.

REFUNDS

Refunds amounting to two-thirds of the initial tuition payment may be requested if a student has official withdrawal during the first 10 calendar days of the quarter. No refunds will be made to students who withdraw without authority or who are dismissed for cause.

STUDENT FINANCIAL AID

The purpose of the financial aid program at Asheville-Buncombe Technical Institute (ABTI) is designed primarily to provide assistance to students who, without such aid, would be unable to attend the Institute. The program is committed to the philosophy that no eligible student should be denied access to a higher education because of a lack of financial resources.

An application for financial aid will gain consideration for grants-in-aid, loans, scholarships and student employment opportunities. In general, financial aid is awarded to students on the basis of need, academic potential, and future promise. In determining the student's need, it is assumed the student will help himself through summer jobs and part-time work while attending school, that the family will provide aid commensurate with its income and resources and that the student will avail himself to any other financial assistance which is available.

Students desiring financial aid for an academic year (September thru August) are encouraged to apply early (January thru March) to be given top priority consideration for the funds available. Applications will be processed until all available funds are awarded.

Copies of all applications mentioned in the following procedure may be obtained from any high school guidance office, most college and university financial aid offices, or the ABTI Financial Aid Office.

Application Procedure

All applicants desiring top priority consideration for available financial aid funds **must** complete the numbered steps below.

1. Before applying for financial aid each applicant **must** complete the first three (3) steps of the Admission Procedure. (See the Table of Contents for the Admission Procedure page reference.)
2. The applicant **must** complete and mail a Family Financial Statement (FFS) and a North Carolina-South Carolina Student Data Form (SDF) to: Operations, ACT Student Assistance Programs, P.O. Box 1000, Iowa City, Iowa, 52240. Both forms will be in the FFS Packet circulated by American College Testing (ACT).
3. In completing the FFS and SDF, the applicant **must** indicate that a copy of each be sent to ABTI, code 3063, and College Foundation North Carolina Student Incentive Grant Program (NCSIG), code 6666.
4. All applicants **must** complete the appropriate section of the FFS requesting that the financial data on the FFS be used to determine their Basic Educational Opportunity Grant (BEOG) eligibility. (Note: The FFS is to be used in applying for the BEOG.)

Following the processing of the FFS, the applicant will receive a Student Financial Aid Report (SFAR) to review and correct (if necessary). The SFAR is simply a printout of the data reported by the applicant's family on the FFS. The applicant will also receive the BEOG Student Eligibility Report (SER). The SER **must** be forwarded by the applicant to the Financial Aid Office without delay.

Once the (a) BEOG Student Eligibility Report, (b) the NCSIG results, (c) the FFS results, and (d) a copy of the SDF are received by ABTI's Financial Aid Office, the applicant's financial need will be determined. Official notification of awards is made no earlier than June 1st prior to enrollment. Each award is contingent upon the availability of funds.

(Important: The above procedure is identical for both in-state and out-of-state applicants; however, out-of-state applicants are not eligible to apply for NCSIG consideration but should apply for a state grant thru their state of legal residence.)

Students desiring additional information about the Financial Aid Program at ABTI are urged to write or phone: Director of Financial Aid, Asheville-Buncombe Technical Institute, 340 Victoria Road, Asheville, NC 28801, 704/254-1921, extension 37.

DEGREES, DIPLOMAS AND CERTIFICATES

DEGREE PROGRAMS DEFINED

Asheville-Buncombe Technical Institute will confer an Associate in Applied Science degree in most Technical and Business Curriculums. This is conferred in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied.

DIPLOMA PROGRAMS DEFINED

Asheville-Buncombe Technical Institute will award a technical diploma for some seven or eight quarter programs. This diploma will be awarded in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied and will be presented as an "Associate of" in the specific curriculum area.

Asheville-Buncombe Technical Institute will award a Diploma in all Trade Curriculums. This diploma will be granted in the name of the North Carolina State Board of Education when all requirements for graduation have been satisfied.

CERTIFICATES

Certificates are issued in the name of the Asheville-Buncombe Technical Institute to students who successfully complete any short term program or course.

DEGREE AND DIPLOMA REQUIREMENTS FOR GRADUATION

The Institute will hold one graduation ceremony each year. This will normally be the last Friday evening in August. To graduate with a diploma or degree, the following minimum requirements must be met:

1. Complete the requirements of an Institute approved program of study. At least half of the credit hours in a program of study must be received at this Institute by taking courses and/or proficiency examinations. Complete not less than 60 credit hours for a diploma or not less than 108 credit hours for a degree. In most programs of study, the approved program will require more than minimum credit hours.

2. Earn a grade of at least **C** in each course in the major and a minimum average of 2.0 (C) quality points on course work presented for graduation. Students completing their study with a 3.5 or better average, will be presented as graduating with high honors and those completing with a 3.0 to 3.5 average will graduate with honors.
3. Be recommended by the chairperson of the department of the major course of study.
4. Submit an application for graduation to the Vice President, Student Services before the published deadline date. Rent caps and gowns and purchase diplomas. (Prices may vary from year to year and do not include the purchase of optional items such as invitations or billfold diplomas.)
5. Fulfill all financial obligations to the Institute. Library clearance is also required.
6. Be present for graduation and attired in the proper academic robe. (Students who cannot attend graduation must submit to the President a written request to be excused two weeks prior to graduation.)

QUALITY POINTS

At the end of each quarter quality points are assigned in accordance with the following formula. (The minimum grade-point ratio for graduation is 2.00 or an average of grade C.)

- A — 4 quality points per credit hour
- B — 3 quality points per credit hour
- C — 2 quality points per credit hour
- D — 1 quality point per credit hour
- F — no quality points
- I — no quality points

Quality ratings are determined by dividing the total number of quality points by the number of hours attempted. A ratio of 2.00 indicates that a student has an average of C.

WP—given when student **officially withdraws** and is passing his work at the time. This will not influence the quality point ratio.

WF—given when the student **officially withdraws** and is failing his work at the time. This will not influence the quality point ratio.

GRADING SYSTEM

Notice will be given to all students who are failing at mid-term and final grades will be issued at the end of the term to all students. Students will be graded on the acquirement of technical skills,

ability to work under supervision, interest in work, initiative, and the ability to apply related information. A student who wants to contest a grade must do so within six weeks of the awarding of the grade.

Students enrolled in either the school of technology or the school of trades will be graded by the following system.

A	93-100	Excellent
B	86-92	Above Average
C	78-85	Average
D	70-77	Passing
F	Below 70	Unsatisfactory
I	Incomplete	
X	Continuing	
WP	Withdrawal passing (official)	
WF	Withdrawal failing (official)	
W	Unofficial withdrawal	
Y	Audit	

Incomplete: Assigned when a student is unable to complete his work or take a final examination because of illness or for other reasons over which the student has no control. An "incomplete" must be removed within the first six weeks of the next term in which the student is enrolled. Otherwise, the grade becomes an "F"

Continuing: Assigned when a student is unable to complete his work within the current quarter because of class being scheduled for consecutive quarters or upon the discretion of the instructor to allow additional time for completion of work. No fixed time limit except that agreed upon between instructor and student. A "contract" of conditions for completion and time limit will be executed by the instructor and signed by both instructor and student.

WITHDRAWAL

In order to qualify for honorable dismissal or a tuition refund, if due, a student must obtain an official withdrawal. An official withdrawal is accomplished by completing a "withdrawal request" form through the Student Services office.

Students who leave school entirely or who leave one or more courses without completing this procedure will receive a grade of "F" for the course or courses in progress and will jeopardize future readmission to the Institute.

Under normal circumstances withdrawal from individual courses will **not** be allowed after the eighth week of the quarter.

See "quality points" for result of withdrawal.

ATTENDANCE POLICY

Regular class attendance is expected of all students. Instructors will keep an accurate class attendance record, and these records will become part of the student's official record. Absences are a serious deterrent to good scholarship, and it is impossible to receive instruction, obtain knowledge, or gain skills when absent from class. Being late for class is also a serious interruption of instruction and continuous infraction cannot be permitted.

Absences may be excused in the event of circumstances beyond the control of the student, or an official and approved school function. Students must inform each instructor if any of these occur. Each instructor will determine the validity of the reason for the absence.

It is the student's responsibility to contact each instructor for class and laboratory assignments missed. Arrangements must be made within twenty-four hours after returning to campus to make up work missed.

Excessive absences may result in the student being dropped from a class by the instructor. It is the instructors prerogative to readmit the student. In the event an instructor denies readmission, the student has the right to appeal to the "Admissions Committee". The appeal must be initiated through Student Services within twenty-four hours of the instructor's denial. The student will remain in class until the hearing is conclusive.

In the event that an instructor is not in class and arrangements have not been made, the class is dismissed after ten minutes. A roll must be signed by the students present and turned into the Department Chairperson, Division Director, or Instructional Dean. Students enrolled in classes that meet for two or more hours and sign the roll and leave, must report to the classroom at the beginning of the second class hour. In the event that the instructor is not present for the second hour, the students again sign the roll and leave. If the course is scheduled for more than two hours, students will not be required to report to the classroom after the second hour.

FAILURES

All failing grades must be removed before graduation. If a student fails a prerequisite course he must repeat and successfully complete the prerequisite before beginning the next course. This could result in the student being enrolled for a longer period than is normally required to complete requirements for graduation.

Students whose effort and/or attitude is such that, in the judgment of their department chairman, they cannot be successful in their studies may be referred to the Admissions Committee for action.

STUDENT CONDUCT

Students will be expected to conduct themselves at all times as individuals of prudence and maturity. The rights and feelings of others will be respected. Each student shall demonstrate a high regard for school facilities and property and for the personal property of others.

School regulations which serve to control such activities as vehicle traffic and parking, smoking, loitering, and other aspects of personal conduct must be stringently observed.

Students may be promptly dismissed for conduct which is considered incompatible with standards of propriety and good judgment.

ADDITIONAL COUNSELING AND TESTING

As mentioned under admission procedure, all applicants will be required to be subjected to a series of tests. This will be accomplished prior to acceptance and registration. The counselor will schedule interviews with students concerning interpretation of their test scores and he will advise students concerning course selections. Additional aptitude tests may be desirable to determine individual ability. Applicants are encouraged to enroll in programs when it is believed that the student has made a sound choice and that he will profit from his choice.

Students are encouraged to use the counseling services at any time. The counseling service will work at all times with individuals to keep them informed of the progress they are making. Also, many reference materials are made available to students during the training program through the counseling service.

PLACEMENT SERVICE

The Institute provides placement services which will assist students and alumni in securing employment. The objective of this service is to guide and assist the student and graduate in obtaining the type of position for which he is best qualified.

The Institute provides placement service by working closely with local industries and the employment agencies. Personal data sheets will be developed for those graduating students who desire this service. Data sheets will be mailed to selected business and industries and group or individual interviews arranged.

STUDENT LOUNGE

A snack-bar lounge is available. Other areas equipped with a variety of modern vending machines are provided for the convenience of students and faculty. Foods and drinks may not be taken into a classroom, shop or laboratory.

DEAN'S LIST

1. Only a full-time student is to be considered. (A full-time student is defined as a student enrolled in a curriculum program, carrying a minimum of 12 quarter hours, or the maximum number of hours scheduled for the curriculum.)
2. Student is to have a minimum 3.50 quality point average to qualify for the quarter under consideration.
3. Student must maintain an overall 3.00 average with a 3.0 average in his major area.
4. Failures, incompletes, and withdrawals, (pass or fail) will automatically eliminate a student from this list for that particular quarter. Students receiving credit for a course by examination are not affected.
5. The list will be compiled by the Registrar, sent to the Department Chairperson, and the Vice-President, Instructional Services will be responsible for final approval and publication in local and pertinent hometown newspapers.
6. This list will be published following every quarter in the Asheville papers and in the hometown papers of qualifying students. (Allowing sufficient time for paper work.)

DIVISION OF BUSINESS EDUCATION

A.A.S. DEGREE CONFERRED

The following areas of study are included in the Division of Business Education.

Business Administration

Electives will indicate a concentration in one of the following:

Accounting

General Business

Banking and Finance

Industrial Management

Marketing

Postal Service Management

Electronic Data Processing

Business Programming

Office Education

Secretarial Science

TECHNICAL DIPLOMA AWARDED

Office Technology

DIPLOMA AWARDED

Data Processing Operations

All of the areas of study in the School of Business Education are seven quarters in duration except Data Processing operations and will require from twenty to thirty hours per week of course work. If a student elects to enroll in the School of Business Education through the Evening School, the time required for completion will be extended.

IMPORTANT

The Schools of Business Education are divided into upper and lower levels. In order for a student to advance into the upper level (2nd year) he must complete the lower (1st year) with a grade point average of 1.75 level work and be recommended by the chairperson of the major department in which he is enrolled.

Specific Entrance Requirements For Business Division

1. Must be a high school graduate or have a state approved equivalent education.

2. Must submit the transcripts of high school and post-high school education.
3. Must demonstrate suitability for business training as determined by appropriate test.
4. Must be in acceptable condition of physical and mental health.
5. Must have a personal interview with school representatives, including a representative of the major department.

Business Administration

In North Carolina the opportunities in business are increasing. With the increasing population and industrial development in this state, business has become more competitive and automated. Better opportunities in business will be filled by people with specialized education beyond high school level. The Business Administration curriculum is designed to prepare the student for employment in one of many occupations common to business. Training is aimed at preparing the student in every phase of administrative work that might be encountered in the average business. The 1976-77 *Occupational Outlook Handbook*, published by the Department of Labor, reports good career opportunities for business graduates through the 1980's.

The Business Administration Department offers a flexible approach to meeting individual career objectives. During the first three quarters, the student enrolls in a common core of courses. With the assistance of faculty advisors, the student is expected to explore career opportunities available in the business world. Beginning in the fourth quarter, the student will take certain required courses and complete his/her schedule by electing courses which will meet individual career objectives. The department suggests two (2) electives per quarter.

Each student will be assigned an advisor and will be counseled prior to preregistration. Electives will be offered based upon results from demand surveys conducted early in the previous quarter. The student must have departmental approval of his/her schedule prior to registration.

The AAS degree in Business Administration will be awarded to a student meeting Institute requirements and completing required courses plus a minimum of eight (8) elective courses from a combination of the concentrations listed below.

For students wishing to concentrate in a specific area the Business Administration Department suggests the following electives. If a student chooses the designated courses in one concentration, the degree will reflect this achievement.

Accounting	Banking & Finance	Industrial Management	Marketing	Postal Service Management (Evening Only)
*BUS 122	BUS 122	*BUS 249	*BUS 206	*PSM 100
BUS 206	*BUS 125	*ISC 102	BUS 208	*PSM 105
BUS 208	*BUS 206	*ISC 202	*BUS 237	*PSM 200
*BUS 223	*BUS 208	*ISC 203	*BUS 238	*PSM 201
*BUS 225	*BUS 209	*ISC 209	*BUS 240	*PSM 202
*BUS 230	BUS 216	*ISC 211	BUS 247	*PSM 203
*BUS 269	*BUS 238	MAT 214	*BUS 248	*PSM 205
MAT 214	BUS 247		BUS 249	*PSM 206
	BUS 248		*BUS 266	
	MAT 214		ECO 107	
			MAT 214	

*Designated Courses

OBJECTIVES OF CURRICULUM

The objectives of the Business Administration Curriculum are to develop the following competencies:

1. Understanding of the principles of organization and management in business operations and utilizations of modern methods for adequate decision making.
2. An understanding of our American economic system through the study of macroeconomics; a study and analysis of the role of finance, and of marketing to include product, place, promotion, and price.
3. Knowledge in specific elements of accounting, banking and finance, marketing, industrial management, postal service management, as indicated by the student's academic choices.
4. Understanding and skill in effective communications for business.
5. Knowledge of human relations as they apply to successful business operations in our economy.

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
BUS	101	Introduction to Business	3	2	4
BUS	120	Accounting I	5	2	6
ENG	100	Reading Comprehension	1	2	2
ENG	101	Fundamentals of English	3	0	3
MAT	105	Introduction to Algebra	3	0	3
			15	6	18
Second Quarter					
BUS	110	Business Machines	1	3	2
BUS	121	Accounting II	5	2	6
ECO	102	Economics I	3	0	3
ENG	102	Composition	3	0	3
MAT	110	Business Mathematics I	5	0	5
			17	5	19

Third Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
BUS	123	Finance I	5	0	5
BUS	125	Introduction to Banking Fundamentals	5	0	5
BUS	239	Introduction to Marketing	5	0	5
ECO	104	Economics II	3	0	3
MAT	112	Mathematics of Finance	3	2	4
			21	2	22

Fourth Quarter

BUS	115	Business Law I	3	0	3
BUS	205	Business Data Analysis	3	0	3
EDP	104	Introduction Business Data Processing	2	2	3
ENG	204	Oral Communication	3	0	3
			11	2	12

Possible Electives

BUS	122	Accounting III	5	2	6
BUS	206	Banking and Finance Credit	5	0	5
BUS	238	Consumer Behavior	3	2	4
ISC	102	Industrial Safety	3	0	3
ISC	209	Plant Layout	3	2	4
OTC	101	Basic Typewriting	2	3	3
PSM	100	Postal Service History and Organization	3	0	3
PSM	105	Mail Processing II	2	4	4

Fifth Quarter

BUS	116	Business Law II	3	0	3
BUS	234	Introduction to Management	3	2	4
EDP	106	Applied Business Data Processing	1	4	3
			7	6	10

Possible Electives

BUS	207	Principles of Bank Operations	3	2	4
BUS	223	Personnel Management and Supervision	5	0	5
BUS	236	Small Business Management	3	0	3
BUS	248	Marketing Research	5	0	5
BUS	266	Professional Sales Techniques	3	0	3
ISC	202	Quality Control	3	2	4
MAT	214	Statistics	5	0	5
PSM	203	Postal Customer Service	2	4	4
PSM	205	Postal Delivery and Collection	2	4	4
SOC	201	Sociology	3	0	3

Sixth Quarter

BUS	229	Taxes	3	2	4
ENG	206	Business Communications	3	0	3
PSY	206	Applied Psychology	3	0	3
			9	2	10

Possible Electives			Hrs. Per Week Class	Lab	Credit Hrs.
BUS	208	Financial Statements Analysis	3	2	4
BUS	225	Cost Accounting I	5	0	5
BUS	231	Government and Business	3	0	3
BUS	235	Business Organization and Management	3	2	4
BUS	237	Advertising	5	0	5
BUS	249	Inventory Control	5	0	5
BUS	269	Auditing	3	2	4
ISC	203	Time and Motion Study	3	2	4
PSM	200	Postal Service Labor Management	3	0	3
PSM	201	Postal Service Support	2	4	4

Seventh Quarter

BUS	223	Personnel Management	5	0	5
BUS	247	Insurance	5	0	5
ENG	103	Report Writing	3	0	3
			<hr/> 13	<hr/> 0	<hr/> 13

Possible Electives					
BUS	209	Banking Services	3	2	4
BUS	226	Cost Accounting II	5	0	5
BUS	230	Taxes II	3	2	4
BUS	240	Channels of Distribution	5	0	5
BUS	297	Real Estate Fundamentals	5	0	5
ECO	107	Consumer Economics	3	0	3
ISC	211	Work Measurement	3	2	4
PSM	202	Postal Employee Services	3	2	4
PSM	206	Postal Problems Analysis	2	4	4

Electronic Data Processing

Increasing business and industrial use of computers in North Carolinas providing a trend of increasing job opportunities in the field of electronic data processing. There is a need for qualified personnel to initiate and maintain electronic data processing functions and operations at all levels. The education and experience acquired through this curriculum prepares the student for many positions in the field of electronic data processing and in related areas of business and industry.

The Electronic Data Processing Department offers two options: Business Programming and Data Processing Operations. Both are designed to meet the needs of individual students and to provide personnel to meet employment needs of business and industry. Both options are identical for the first quarter to allow the student time to elect his preference. **Business Programming is a seven quarter curriculum and leads to an Associate in Applied Science Degree. Data Processing Operations is a four quarter curriculum and leads to a Diploma in Data Processing.** Most credits earned in either curriculum may be transferred to senior institutions.

The electronic data processing hardware available to all students consists of IBM unit-record equipment, and the IBM System 360 computer. The S/360 is configured with three disk drives, two magnetic tape drives, a line printer, a card read/punch unit and a console typewriter.

BUSINESS PROGRAMMING

This curriculum is designed to give the student a broad background in business data processing. Technical courses emphasizing computer programming in several modern computer languages, systems and procedures in data processing, and computer operations are supported by many courses from which practical business, commercial, and industrial application problems may be selected. The data processing courses include lectures to introduce theory and new concepts, example problems utilizing common techniques, and practical laboratory problems for the individual students, (Must meet same specific entrance requirements as Engineering Technology.)

OCCUPATIONAL OPPORTUNITIES

Business programming graduates have opportunities in computer programming, computer operations, systems analysis, and data processing supervision. These positions may be found in banking, business, civil service, educational institutions, industry, and insurance.

BUSINESS PROGRAMMING

			Hrs. Per Week	Credit
			Class	Hrs.
First Quarter				
EDP	104	Introduction to Business Data Processing	2	3
BUS	101	Introduction to Business	3	4
ENG	100	Reading Comprehension	1	2
ENG	101	Fundamentals of English	3	3
MAT	100	Basic Mathematics	5	5
			<hr/>	<hr/>
			14	17
Second Quarter				
EDP	107	Introduction to S/360-370 (DOS)	3	4
EDP	108	Business Programming (BAL)	3	4
BUS	120	Accounting I	5	6
MAT	101	Algebra and Trigonometry I	5	5
			<hr/>	<hr/>
			16	19
Third Quarter				
EDP	109	Systems and Procedures (BAL)	2	3
EDP	118	Data Base Management Concepts	3	4
BUS	121	Accounting II	5	6
MAT	102	Algebra and Trigonometry II	5	5
			<hr/>	<hr/>
			15	18
Fourth Quarter				
EDP	205	Scientific Programming (Fortran IV)	3	4
EDP	206	Systems and Procedures (Fortran IV)	2	3
ECO	102	Economics I	3	3
ENG	102	Composition	3	3
MAT	214	Statistics	5	5
			<hr/>	<hr/>
			16	18
Fifth Quarter				
EDP	218	Business Programming (RPG)	3	4
EDP	219	Systems and Procedures (RPG)	2	3
BUS	225	Cost Accounting	5	5
ENG	204	Oral Communications	3	3
MAT	112	Mathematics of Finance	3	4
			<hr/>	<hr/>
			16	19
Sixth Quarter				
EDP	215	Business Programming (Cobol)	3	4
EDP	216	Systems and Procedures (Cobol)	2	3
EDP	220	Systems Analysis and Design	2	3
BUS	235	Business Organization and Management	3	4
PSY	206	Applied Psychology	3	3
			<hr/>	<hr/>
			13	17
Seventh Quarter				
EDP	217	Business Programming (Advanced Cobol)	2	3
EDP	221	Advanced Projects (Cobol)	2	3
BUS	233	Personnel Management and Supervision	5	5
ECO	107	Consumer Economics	3	3
ENG	103	Report Writing	3	3
			<hr/>	<hr/>
			15	17

DATA PROCESSING OPERATIONS

This curriculum is designed to provide the student with the basic skills and knowledge required in a data processing operations department. Stress is on keypunching, control functions, and librarian functions. There is exposure to unit record equipment operations, computer operations, and computer programming. The support courses are designed to give the student a basic understanding of the business world, and to improve his communication and computational skills.

OCCUPATIONAL OPPORTUNITIES

The graduates of this program are qualified to perform clerical functions in control and operation positions, as part of data processing and other departments. Their training and practical experience qualifies them for jobs as computer operators, keypunch operators, control clerks, tape librarians, or unit record equipment operators.

Data Processing Operations

			Hrs. Per Week		Credit
			Class	Lab	Hrs.
First Quarter					
EDP	104	Introduction to Business Data Processing	2	2	3
BUS	101	Introduction to Business	3	2	4
ENG	100	Reading Comprehension	1	2	2
ENG	101	Fundamentals of English	3	0	3
*MAT	100	Basic Mathematics	5	0	5
			14	6	17
Second Quarter					
EDP	171	Basic Key punching	2	3	3
BUS	110	Business Machines	1	3	2
ECO	108	Consumer Economics	5	0	5
ENG	102	Composition	3	0	3
*PSY	1101	Human Relations	3	0	3
			14	6	16
Third Quarter					
EDP	160	EDP Operations	2	3	3
EDP	163	Special Projects	2	3	3
EDP	172	Keypunching Skill Development	2	3	3
BUS	117	Clerical Accounting I	5	2	6
ENG	204	Oral Communications	3	0	3
			14	11	18
Fourth Quarter					
EDP	173	Cooperative or Supervised Experience	0	15	5
EDP	174	Seminar on Cooperative Education	2	0	2
BUS	118	Clerical Accounting II	5	2	6
			7	17	13

*MAT 105 or MAT 110 may be substituted for MAT 100

*PSY 206 may be substituted for PSY 1101

Office Education

The Office Education Department endeavors to teach students those skills and attitudes necessary to staff positions found in any type of office.

The student may choose one of two approaches to achieve this goal: Secretarial Science or Office Technology. Both programs are twenty-one months in length. **The Associate in Applied Science degree is awarded the Secretarial Science graduate; the Office Technologist earns the Associate of Office Technology-Technical Diploma.**

SECRETARIAL SCIENCE

The purpose of the curriculum is to instruct the student in the aspects involved in the role of the secretary in order to enable the individual to succeed in the position as the communication's link for management.

To accomplish this purpose, the department endeavors to teach, in addition to skills and general business courses, occupational intelligence, and also endeavors to help the student develop a secretarial personality.

OCCUPATIONAL OPPORTUNITIES

A graduate of this program could perform in any secretarial position in business, industry, education, government, etc. With additional specialized work, the individual also could qualify to enter a secretarial position in the field of health services or law.

† Secretarial Science

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
*SSC	100	Shorthand Speed Building	1	2	2
SSC	101	Basic Typewriting (or Credit by Examination)	2	3	3
SSC	102	Shorthand	3	2	4
BUS	101	Introduction to Business	3	2	4
ENG	100	Reading Comprehension	1	2	2
ENG	101	Fundamentals of English	3	0	3
			12 (10)	9 (9)	16 (14)
Second Quarter					
SSC	103	Advanced Typewriting	2	3	3
SSC	104	Shorthand	3	2	4
SSC	127	Business English	3	0	3
BUS	115	Business Law I	3	0	3
MAT	110	Business Mathematics I	5	0	5
			16	5	18

Third Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
SSC	105	Expert Typewriting	2	3	3
SSC	106	Shorthand	3	2	4
BUS	110	Business Machines	1	3	2
BUS	120	Accounting I	5	2	6
ENG	102	Composition	3	0	3
			14	10	18

Fourth Quarter

SSC	108	Shorthand	3	2	4
SSC	111	Secretarial Machines	2	2	3
SSC	112	Filing	3	0	3
SCC	113	Personality Development for Secretaries	3	0	3
BUS	121	Accounting II	5	2	6
			16	6	19

Fifth Quarter

SSC	205	Professional Typewriting	2	3	3
SSC	206	Dictation and Transcription	3	2	4
ECO	105	Introduction to Economics	5	0	5
EDP	104	Introd. to Business Data Processing	2	2	3
ENG	204	Oral Communication	3	0	3
			15	7	18

Sixth Quarter

SSC	207	Secretarial Procedures & Administration I	3	2	4
SSC	208	Dictation and Transcription	3	2	4
SSC	272	Terminology	2	0	2
ECO	107	Consumer Economics	3	0	3
ENG	205	Written Communication	5	0	5
			16	4	18

Seventh Quarter

SSC	209	Secretarial Procedures & Administration II	3	2	4
SSC	210	Dictation and Transcription	3	2	4
SSC	271	Office Management	3	0	3
PSY	206	Applied Psychology	3	0	3
			12	4	14

*SSC 100 - Only for students who have had previous shorthand training. Class hours dependent upon shorthand class taken.

†Credits toward the A.A.S. degree in Secretarial Science may be given to persons holding the Certified Professional Secretary rating. If interested, those holding this certification should contact the Chairperson, Department of Office Education. Persons interested in becoming a candidate for the certification can obtain information from the Institute for Certifying Secretaries, 2440 Pershing Road, Suite G, 10 Crown Center, Kansas City, Missouri 64108.

Office Education

OFFICE TECHNOLOGY

The purpose of this curriculum is to provide training for students who wish to enter the office to fill positions of varied responsibilities. Because of the trend toward expansion of business and government activities, the number of different skills required in the office has too expanded. This curriculum provides a broad general base of office skills with which the graduate may enter an office to perform any number of various tasks.

OCCUPATIONAL OPPORTUNITIES

A graduate of this program earns the Associate of Office Technology-Technical Diploma and should be able to find employment in any office regardless of size, but specifically the graduate may locate in the rapidly growing health field as a ward secretary, in medical records, as a receptionist in a doctor's office; in industry the graduate may find employment in the personnel office, the book-keeping department; in educational Institutions; in banking, employment may be found as tellers, transit clerks. The graduate may qualify for a GS-2 or GS-3 Civil Service rating and may also find employment in office positions for state and local governments.

Office Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
OTC	101	Basic Typewriting (or Credit by Examination)	2	3	3
*ENG	111	Grammar	5	0	5
**ENG	100	Reading Comprehension	1	2	2
MAT	108	Business Arithmetic	5	0	5
			13	5	15
Second Quarter					
OTC	100	Spelling & Punctuation Study	3	0	3
OTC	103	Advanced Typewriting	2	3	3
BUS	100	Contemporary Business	3	2	4
BUS	110	Business Machines	1	3	2
*PSY	1101	Human Relations	3	0	3
			12	8	15
Third Quarter					
OTC	105	Expert Typewriting	2	3	3
†OTC	111	Office Machines	2	2	3
BUS	117	Clerical Accounting I	5	2	6
*ECO	108	Consumer Economics	5	0	5
ENG	102	Composition	3	0	3
			17	7	20

Fourth Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
OTC	113	Personality Development	3	0	3
OTC	205	Professional Typewriting	2	3	3
OTC	272	Vocabulary Building	2	0	2
BUS	118	Clerical Accounting II	5	2	6
EDP	104	Introduction to Business Data Processing	2	2	3
			14	7	17
Fifth Quarter					
*OTC	116	Filing	5	0	5
OTC	211	Typing Office Practice	2	3	3
OTC	214	Machine Transcription	2	3	3
BUS	119	Clerical Accounting III	5	2	6
ENG	204	Oral Communications	3	0	3
			17	8	20
Sixth Quarter					
OTC	213	Office Procedures	3	2	4
OTC	216	Payroll Procedures	5	0	5
BUS	214	Credit Procedures	3	0	3
ENG	205	Written Communications	5	0	5
			16	2	17
Seventh Quarter					
‡OTC	218	Cooperative or Supervised Office Education	0	15	5
‡OTC	220	Seminar on Cooperative Education	2	0	2
			2	15	7

*ENG 101 may be substituted for ENG 111

*PSY 206 may be substituted for PSY 1101

*ECO 105 may be substituted for ECO 108

*SSC 112 may be substituted for OTC 116

**Students entering the Office Technology program will be channeled into either ENG 1101 or ENG 100. Placement will be determined through diagnostic evaluation of reading competencies.

†SSC courses with similar digits and course titles may be substituted for OTC courses with department chairperson's permission.

‡Subject to departmental guidelines, appropriate work experience may be used in lieu of OTC 218 and OTC 220. Evening students must take these courses through the day program or meet the work experience requirement.

DIVISION OF ENGINEERING TECHNOLOGY

A.A.S. DEGREE CONFERRED

The following areas of study are included in the school of engineering technology:

- Chemical Engineering Technology
- Civil Engineering Technology
- Drafting and Design Technology
- Electronics Technology
- Mechanical Engineering Technology

The curriculums in the school of engineering technology are seven quarters in duration and will require about twenty-five to thirty hours per week in classroom and laboratory work. If a student elects to enroll in the school of engineering technology through evening division, the time required for completion will be extended.

The Division of Engineering Technology will require each student to demonstrate an ability to do research as it relates to original thinking. Certain courses are required of every student irrespective of the curriculum area. These courses are core courses and will serve as supporting areas of study in addition to the subjects required by the technical specialty.

Important

The schools of engineering technology are divided into upper and lower level. In order for a student to advance into the upper level (2nd year), he or she must complete the lower (1st year) level work with a grade point average 1.75 and be recommended by the chairperson of the major department in which he is enrolled.

Specific Entrance Requirements For Engineering Technology Programs

1. Be a high school graduate or have a state approved equivalent education.
2. Submit transcripts of high school and post high school education.

3. Students must demonstrate mathematics proficiency:
- a. have high school credit for two units of math, one of which is in algebra and the other in algebra II, plane geometry, or equivalent.
 - b. achieve satisfactory scores on mathematics placement examination.
- Recommended: The candidate should have completed a unit of science beyond general science, such as physics or chemistry.
4. Must demonstrate suitability for technical training as determined by appropriate tests.
5. The Institute may require a complete physical examination.
6. Must have a personal interview with designated school representatives.

Chemical Engineering Technology

(Industrial)

The chemical technology student studies the fundamentals of general chemistry and organic chemistry and learns how to perform qualitative, and analytical analyses. The student will study substances and the reactions between them and learn the methods and procedures used in the discovery and development of new products. In the unit operation laboratory the student will learn material handling; crushing, grinding, and sizing; he studies chemical machinery and methods used in extraction, distillation, evaporation, drying, absorption, and heat transfer. He also devises, installs, and operates chemical manufacturing processes.

OCCUPATIONAL OPPORTUNITES

The chemical technology graduate will find employment in a wide variety of fields such as foods, metals, paints, glass, plastics, rubber, fuels, paper, building products, dyes, oils, lubricants, heavy chemicals, crime laboratory and water and air pollution.

This individual will fill such jobs as research assistant, control chemist, laboratory technician, chemical analyst, and pilot plant foreman.

Chemical Engineering Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
CHM	111	General Chemistry	3	4	5
ENG	101	Fundamentals of English	3	0	3
MAT	100	Basic Mathematics	5	0	5
ECO	105	Introduction to Economics	5	0	5
			16	4	18

Second Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
CHM	112	General Chemistry	3	4	5
MEC	111	Manufacturing Process	3	3	4
ENG	102	Composition	3	0	3
MAT	101	Algebra and Trigonometry I	5	0	5
PHY	101	Properties of Matter	3	2	4
			<hr/> 17	<hr/> 9	<hr/> 21
Third Quarter					
CHM	113	General Chemistry	3	4	5
CHM	121	Qualitative Analysis	3	6	5
ENG	103	Report Writing	3	0	3
MAT	102	Algebra and Trigonometry II	5	0	5
PHY	102	Mechanics	3	2	4
			<hr/> 17	<hr/> 12	<hr/> 22
Fourth Quarter					
CHM	222	Quantitative Chemical Analysis	3	6	5
ENG	204	Oral Communications	3	0	3
MAT	103	Analytical Geometry and Calculus I	5	0	5
PHY	103	Electricity	3	2	4
DFT	106	Graphic Analysis	1	5	3
			<hr/> 15	<hr/> 13	<hr/> 20
Fifth Quarter					
CHM	223	Quantitative Chemical Analysis	2	9	5
CHM	231	Organic Chemistry	3	6	5
MEC	235	Hydraulics and Pneumatics	3	3	4
SOC	201	Sociology	3	0	3
			<hr/> 11	<hr/> 18	<hr/> 7
Sixth Quarter					
CHM	232	Organic Chemistry	3	6	5
CHM	241	Industrial Chemical Analysis	3	9	6
EDP	105	Introduction to Scientific Data Processing	2	2	3
			<hr/> 8	<hr/> 17	<hr/> 14
Seventh Quarter					
CHM	242	Industrial Chemical Analysis	3	9	6
CHM	244	Environmental Chemistry	3	2	4
PSY	206	Applied Psychology	3	0	3
			<hr/> 9	<hr/> 11	<hr/> 13

Civil Engineering Technology

Construction technicians perform many of the planning and supervisory tasks necessary in the construction of highways, bridges, power plants, dams, missile sites, airfield, water and sewage treatment plants, industrial buildings and utilities. In the planning stages of construction they may be engaged in estimating costs, ordering materials, interpreting specifications, computing earthwork and fills and storm drainage requirements, surveying or drafting. Once the actual construction work has begun, many technicians perform supervisory functions. Some may be responsible for seeing that construction activities are performed in proper sequence, and for inspecting the work as it progresses for conformance with blueprints and specifications.

OCCUPATIONAL OPPORTUNITIES

Graduates should qualify for various jobs such as surveying instrument men or party chiefs, construction estimators, materials testing technicians (lab or field), construction foremen, structures and materials design technicians, construction equipment and materials salesmen, and field draftsmen.

Civil Engineering Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
SOC	201	Sociology	3	0	3
ENG	101	Fundamentals of English	3	0	3
MAT	100	Basic Mathematics	5	0	5
CIV	217	Construction Methods and Equipment	4	4	6
			15	4	17
Second Quarter					
ENG	102	Composition	3	0	3
MAT	101	Algebra and Trigonometry I	5	0	5
PHY	101	Properties of Matter	3	2	4
CIV	220	Construction Planning	4	0	4
DFT	101	Drafting	1	5	3
			16	7	19
Third Quarter					
MAT	102	Algebra and Trigonometry II	5	0	5
PHY	102	Mechanics	3	2	4
CIV	101	Surveying	2	6	4
CIV	114	Statics	5	0	5
			15	8	18

Fourth Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
*MAT	103	Analytical Geometry and Calculus I	5	0	5
DFT	104	Civil Drafting	1	5	3
CIV	103	Surveying	2	6	4
ENG	204	Oral Communications	3	0	3
CIV	216	Strength of Materials	5	0	5
			<u>16</u>	<u>11</u>	<u>20</u>
Fifth Quarter					
CIV	102	Surveying	2	6	4
CIV	218	Plain and Reinforced Concrete	4	4	6
PHY	103	Electricity	3	2	4
CIV	202	Properties of Soils	2	2	3
			<u>11</u>	<u>14</u>	<u>17</u>
Sixth Quarter					
EDP	105	Introduction to Scientific Data Processing	2	2	3
CIV	225	Estimates, Codes and Specifications	4	4	6
CIV	221	Asphalt	2	2	3
CIV	219	Steel and Timber Construction	4	4	6
			<u>12</u>	<u>12</u>	<u>18</u>
Seventh Quarter					
CIV	204	Surveying	2	6	4
ENG	103	Report Writing	3	0	3
CIV	227	Construction of Highways	4	0	4
CIV	229	Branches of Civil Engineering Technology	3	0	3
PSY	206	Applied Psychology	3	0	3
CIV	228	Engineering Relations and Ethics	2	0	2
			<u>17</u>	<u>6</u>	<u>19</u>

*Mat 204 may be substituted for MAT 103

Drafting And Design Technology

The Drafting and Design Technology curriculum is designed to provide the student with knowledge and skills that will lead to employment and advancement in the field of mechanical drafting and design. This curriculum provides drafting room experience supplemented by a planned sequence of related courses and shop experiences. Emphasis is placed on the ability to think and plan, as well as drafting procedures and techniques.

Drafting and design technicians perform many aspects of drafting in a specialized field such as the developing of the drawing for a detail part, sub assembly or major component. Investigation of design factors, availability of material and equipment, production methods and facilities are frequent assignments. Technicians may assist in the design of units, cost estimating, and preparation of reports on functional performance. Also, they may be assigned as coordinators for the execution of related work of other design, production, tooling, material and planning groups. Technicians with experience in this classification may often supervise the preparation of working drawings.

OCCUPATIONAL OPPORTUNITIES

Job opportunities are found in many types of manufacturing, fabrication, research development, and service industries. Substantial numbers are also employed in communications, transportation, public utilities, consulting engineering firms, architectural firms, and governmental agencies.

Drafting and Design Technology

			Hrs. Per Week		Credit
			Class	Lab	Hrs.
First Quarter					
ENG	101	Fundamentals of English	3	0	3
MAT	100	Basic Mathematics	5	0	5
DFT	101	Drafting	1	5	3
SOC	201	Sociology	3	0	3
MEC	111	Manufacturing Processes	3	3	4
			15	8	18
Second Quarter					
ENG	102	Composition	3	0	3
MAT	101	Algebra and Trigonometry I	5	0	5
PHY	101	Properties of Matter	3	2	4
DFT	102	Drafting	1	5	3
MEC	101	Machine Procesess	2	4	4
			14	11	19

Third Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
MAT	102	Algebra and Trigonometry II	5	0	5
PHY	102	Mechanics	3	2	4
DFT	103	Drafting	1	5	3
DFT	204	Descriptive Geometry	2	6	4
			<u>11</u>	<u>13</u>	<u>16</u>
Fourth Quarter					
MAT	204	Applied Mathematics	5	0	5
MEC	105	Statics	5	0	5
MEC	211	Basic Physical Metallurgy	3	3	4
DFT	201	Design Drafting	2	6	4
			<u>15</u>	<u>9</u>	<u>18</u>
Fifth Quarter					
MEC	205	Strength of Materials	5	0	5
MEC	235	Hydraulics and Pneumatics	3	3	4
PHY	103	Electricity	3	2	4
DFT	205	Design Drafting	2	6	4
			<u>13</u>	<u>11</u>	<u>17</u>
Sixth Quarter					
ENG	204	Oral Communications	3	0	3
DFT	211	Mechanisms and Kinematics Design	2	6	4
DFT	212	Jig and Fixture Design	2	6	4
EDP	105	Introduction to Scientific Data Processing	2	2	3
			<u>9</u>	<u>14</u>	<u>14</u>
Seventh Quarter					
ENG	103	Report Writing	3	0	3
DFT	206	Design Drafting	2	6	4
ELC	201	Electrical Machinery	3	0	3
PSY	206	Applied Psychology	3	0	3
DFT	242	Architectural Drafting	2	6	4
			<u>13</u>	<u>12</u>	<u>17</u>

Electronics Technology

The Electronics Technology curriculum provides a broad theoretical and practical program of training for those who seek electronic careers in industry and government. Step by step instructional techniques are utilized to insure a sound background in theory leading to a broad understanding of complex circuits. In initial laboratory experiments, students develop skills in the use of modern electronic test equipment and measuring instruments. Later laboratory work includes analysis of circuits, construction of circuits and theory of circuit design.

The related subjects include applied physics, mathematics, technical report writing, industrial organization, technical drawing and an introduction to data processing systems. An intensive two-quarter review of mathematics is available for students desiring additional preparation in this subject.

OCCUPATIONAL OPPORTUNITIES

Research and development engineering assistant, computer technician, manufacturers technical representative, technical representatives, medical electronics technologists and laboratory technician.

Electronics Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
MAT	100	Basic Mathematics	5	0	5
SOC	201	Sociology	3	0	3
ENG	100	Reading Comprehension	1	2	2
ENG	101	Fundamentals of English	3	0	3
ELN	101	Fundamentals of D.C.	4	4	6
			16	6	19
Second Quarter					
MAT	101	Algebra and Trigonometry I	5	0	5
ENG	102	Composition	3	0	3
PSY	206	Applied Psychology	3	0	3
CHM	102	Engineering Chemistry	3	2	4
ELN	102	Fundamentals of A.C.	4	4	6
			18	6	21
Third Quarter					
MAT	102	Algebra and Trigonometry II	5	0	5
PHY	101	Properties of Matter	3	2	4
ELN	103	Network Analysis	4	4	6
ELN	105	Vacuum Tubes Theory and Application	4	4	6
			16	10	21

Fourth Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
MAT	103	Analytical Geometry and Calculus I	5	0	5
MAT	121	Numbering Systems and Boolean Algebra	3	0	3
PHY	102	Mechanics	3	2	4
DFT	109	Electronics Drafting	1	5	3
ELN	106	Introduction to Solid State Devices	4	4	6
			<hr/> 16	<hr/> 11	<hr/> 21
Fifth Quarter					
MAT	201	Calculus II	5	0	5
PHY	104	Light and Sound	3	2	4
ELN	207	Transistor Amplifier Analysis	4	4	6
ELN	209	Circuit Analysis	4	4	6
			<hr/> 16	<hr/> 10	<hr/> 21
Sixth Quarter					
EDP	105	Introduction to Scientific Data Processing	2	2	3
ENG	204	Oral Communications	3	0	3
ELN	211	Logic Circuits	4	4	6
ELN	213	Waveshaping and Pulse Circuits	4	4	6
			<hr/> 13	<hr/> 10	<hr/> 18
Seventh Quarter					
ENG	103	Report Writing	3	0	3
ELN	217	Introduction to Special Devices	4	4	6
ELN	219	Industrial Instrumentation	4	4	6
ELN	221	Electronic Circuit Design	4	4	6
			<hr/> 15	<hr/> 12	<hr/> 21

Mechanical Engineering Technology

This curriculum offers a broad, well-rounded education to those desiring to become an engineering technician. The wide scope of subject matter covered prepares the graduate for employment in many branches of the mechanical engineering field.

The general knowledge of mechanical principles is supplemented by the elective courses offered. Depending on the selection of electives, the student may pursue further study in machine design, automation, control systems, instrumentation, or associated business principles.

The student learns to apply the theory and principles of basic mechanical engineering to the design, development and testing of machinery under the guidance of the engineering staff. He learns to prepare detail and design drawings to scale, and also drawing in perspective. The student is prepared to provide all necessary sketches, illustrations, orthographic drawings as well as preliminary, final and testing specifications for design or redesign of most types of industrial machinery or tooling. He is taught to plan scientific tests or evaluations to discover cause or breakdown. The student is prepared to support the engineering work needed for design or utilization of new machines, redesigned machines or machine components, sub-assemblies and complete assembly lines. He is trained in industrial safety techniques, proper approaches to cooperation with fellow workers, and the basic industrial management techniques.

OCCUPATIONAL OPPORTUNITIES

The graduate is prepared for jobs such as mechanical engineering technician, experimental technician, laboratory-development technician, general engineering technician, engineering aide, shop foreman trainee, industrial engineering trainee, and inspector. Many industrial firms as well as government agencies will pay tuition and occasionally other expenses of further education for graduates of this program.

Mechanical Engineering Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
ENG	101	Fundamentals of English	3	0	3
MAT	100	Basic Mathematics	5	0	5
DFT	101	Drafting	1	5	3
MEC	101	Machine Processes	2	4	4
SOC	201	Sociology	3	0	3
			14	9	18

Second Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
ENG	102	Composition	3	0	3
MAT	101	Algebra and Trigonometry I	5	0	5
PHY	101	Properties of Matter	3	2	4
DFT	102	Drafting	1	5	3
MEC	111	Manufacturing Processes	3	3	4
			15	10	19
Third Quarter					
ENG	103	Report Writing	3	0	3
MAT	102	Algebra and Trigonometry II	5	0	5
PHY	102	Mechanics	3	2	4
MEC	212	Practical Automation	3	0	3
DFT	204	Descriptive Geometry	2	6	4
			16	8	19
Fourth Quarter					
ENG	204	Oral Communications	3	0	3
MAT	103	Analytical Geometry and Calculus I	5	0	5
PHY	103	Electricity	3	2	4
MEC	105	Statics	5	0	5
MEC	210	Physical Metallurgy	3	3	4
			19	5	21
Fifth Quarter					
ELC	205	Applied Electricity	2	4	4
MEC	205	Strenght of Materials	5	0	5
MEC	235	Hydraulics and Pneumatics	3	3	4
Elective		Engineering, Shop or Business	—	—	3-5
			Up to: 15	10	18
Sixth Quarter					
EDP	105	Introduction to Scientific Data Processing	2	2	3
MEC	208	Machine Design	4	0	4
MEC	206	Dynamics	3	0	3
MEC	220	Power Systems	3	2	4
			12	4	14
Seventh Quarter					
ISC	102	Industrial Safety	3	0	3
BUS	101	Inroduction to Business	3	2	4
PSY	206	Applied Psychology	3	0	3
MEC	209	Machine Design	4	0	4
CHM	102	Engineering Chemistry	3	2	4
			16	4	18

DIVISION OF HOSPITALITY EDUCATION

The following areas of study are included in the school of Hospitality Education:

Culinary Technology: Associate of Culinary
Technology — Technical Diploma

Culinary Arts: Diploma awarded for one year program

Hotel and Restaurant Management — A.A.S. degree
conferred.

The areas of study in the Division of Hospitality Education are generally seven quarters in duration and will require from twenty to thirty hours per week of course work.

In addition to regular classroom work each student will be required to spend additional time on outside work assignments. This will normally be conducted in the summer quarter.

Important

The schools are divided into upper and lower levels. In order for a student to advance into the upper level (2nd year) he or she must complete the lower (1st year) with a grade point average of 1.75 level work and be recommended by the chairperson of the major department in which he is enrolled.

Specific Entrance Requirements for Hospitality Programs

1. Must be a high school graduate or have a state approved equivalent education.
2. Must submit the transcripts of high school and post-high school education.
3. Must demonstrate suitability for hotel or culinary programs training as determined by appropriate tests.
4. Must be in acceptable condition of physical and mental health and meet state requirements for food handling certificate.
5. Must have a personal interview with school representatives.
6. Must have a personal interview with department representative.

Culinary Technology

This curriculum will award a one year diploma and a two year Associate of Culinary Technology diploma. A student may terminate at the completion of four quarters work and receive a Culinary Arts diploma only.

To achieve these objectives, these programs are directed toward supplying, through a combination of courses, in-house observation and experience and on-the-job training, the knowledge of skills which will contribute to the success of the future graduate in the hospitality industry.

These course are designed to teach the students to search, to select and to taste. The art of fine cuisine is a profession; therefore, the emphasis will be directed on preparing the student for the hotel/motel restaurant and associated fields.

OCCUPATIONAL OPPORTUNITIES

For graduates the employment opportunities are as follows: catering director, food director, chef, food buyer, dining room manager and many others.

Uniforms will be required for all students. These may be purchased at a reasonable cost.

CULINARY TECHNOLOGY (7 QUARTERS)

CULINARY ARTS (1st 4 QUARTERS)

			Hrs. Per Week		Prac. Lab	Credit Hrs.
			Class	Lab		
First Quarter						
ENG	101	Fundamentals of English	3	0	0	3
MAT	109	Business Math, Hospitality Indus.	5	0	0	5
HRM	101	Hospitality Orientation	3	0	0	3
CSP	101	Food Preparation I	3	0	9	6
CSP	107	Food Service Equipment Orientation	1	2	0	2
			16	2	9	19
Second Quarter						
ENG	102	Composition	3	0	0	3
HRM	104	Food Purchasing I	2	2	0	3
CSP	103	Food Preparation II	3	0	12	7
CSP	105	Baking I	2	0	3	3
HRM	108	Food Cost Control	3	0	0	3
			13	2	15	19

			Hrs. Per Week		Prac. Lab	Credit Hrs.
Third Quarter			Class	Lab		
ENG	206	Business Communications	3	0	0	3
HRM	109	Food Purchasing II	2	2	0	3
CSP	106	Food Preparation III	3	0	12	7
CSP	108	Menu Planning	1	2	0	2
CSP	112	Baking II	2	0	3	3
			<hr/>	<hr/>	<hr/>	<hr/>
			11	4	15	18
Fourth Quarter						
*CSP	110	Supervised Work Experience	2	0	40	6
Fifth Quarter						
ENG	204	Oral Communications	3	0	0	3
BUS	110	Business Machines	1	0	3	2
CSP	113	Baking III	2	0	3	3
CSP	201	Food Preparation IV	3	0	12	7
CSP	203	Dining Room I	1	2	0	2
			<hr/>	<hr/>	<hr/>	<hr/>
			10	2	18	17
Sixth Quarter						
SOC	201	Sociology	3	0	0	3
HRM	213	Food Service Sanitation	3	0	0	3
HRM	215	Beverage Cost Control	3	0	3	4
CSP	208	Convenience Foods	2	0	0	2
CSP	210	Food Preparation VI	3	0	12	7
			<hr/>	<hr/>	<hr/>	<hr/>
			14	0	15	19
Seventh Quarter						
PSY	206	Applied Psychology	3	0	0	3
HRM	209	Personnel Management				
		Hospitality Industry	3	0	0	3
CSP	207	Food Preparation V Buffet	3	0	12	7
CSP	214	Dining Room II	1	2	0	2
			<hr/>	<hr/>	<hr/>	<hr/>
			10	2	12	15

*The student must have completed all major courses with a "C" average or better through the third quarter and/or have the approval of the Department Chairman prior to entering the supervised work experience. Upon the completion of the supervised work experience, it is left to the discretion of the Department Chairman to allow re-admittance of the student to continue into the second year.

Hotel And Restaurant Management

The student enrolled in this curriculum will work with all aspects of the hospitality industry. The lodge on campus will be under the direction of this curriculum. This will provide actual experience in the field. The students will also work with culinary technology program on campus to gain knowledge of food service operations.

OCCUPATIONAL OPPORTUNITIES

The total curriculum will provide the foundation for a graduate to enter the hospitality industry in a training capacity. After an application of the knowledge gained from the curriculum and training program on the job, the individual will be able to assume the responsibility of management: catering manager, food & beverage controller, managing director, food & beverage manager, restaurant manager, assistant manager, front office management, director of sales, purchasing agent, and executive housekeeper.

Hotel and Restaurant Management

			Hrs. Per Week		Credit
			Class	Lab	Hrs.
First Quarter					
ENG	101	Fundamentals of English	3	0	3
MAT	109	Business Math, Hospitality Indus.	5	0	5
BUS	110	Business Machines	1	3	2
CSP	100	Food Preparation I	3	6	5
HRM	101	Hospitality Orientation	3	0	3
CSP	107	Food Service Equipment Orientation	1	2	2
			16	11	20
Second Quarter					
ENG	102	Composition	3	0	3
CSP	102	Food Preparation II	3	6	5
HRM	108	Food Cost Control	3	0	3
HRM	104	Food Purchasing I	2	2	3
HRM	107	Basic Hotel Accounting	5	2	6
			16	10	20
Third Quarter					
ENG	206	Business Communications	3	0	3
CSP	104	Food Preparation III	3	9	6
HRM	105	Hotel Accounting	5	2	6
BUS	115	Business Law	3	0	3
HRM	109	Food Purchasing II	2	2	3
			16	13	21

Fourth Quarter			Hrs. Per Week Class	Week Lab	Credit Hrs.
HRM	110	Supervised Work Experience*	2	40	6
Fifth Quarter					
ECO	105	Introduction to Economics	5	0	5
ENG	204	Oral Communications	3	0	3
HRM	205	Front Office Procedure	2	4	4
HRM	207	Laws or Innkeeping	5	0	5
HRM	211	The Financial Ingredient in Food Service Management	3	2	4
			<u>18</u>	<u>6</u>	<u>21</u>
Sixth Quarter					
SOC	201	Sociology	3	0	3
BUS	229	Taxes	3	2	4
HRM	206	Business Management in Hotel-Motel and Restaurants	3	0	3
HRM	208	Supervisory Housekeeping	3	2	4
HRM	215	Beverage Cost Control	3	3	4
HRM	210	Tourism	1	2	2
HRM	213	Food Service Sanitation	3	0	3
			<u>19</u>	<u>9</u>	<u>23</u>
Seventh Quarter					
PSY	206	Applied Psychology	3	0	3
BUS	247	Insurance	5	0	5
HRM	209	Personnel Management Hospitality Industry	3	0	3
HRM	212	Sales Promotion and Advertising	2	2	3
HRM	214	Engineering Layout and Design	2	4	4
EDP	104	Introduction to Business Data Processing	2	2	3
			<u>17</u>	<u>8</u>	<u>21</u>

*The student must have completed all major courses with a "C" average or better through the third quarter and/or have the approval of the Department Chairman prior to entering the supervised work experience. Upon the completion of the supervised work experience, it is left to the discretion of the Department Chairman to allow re-admittance of the student to continue into the second year.

DIVISION OF ALLIED HEALTH EDUCATION

The Allied Health Program provides an opportunity for extensive and intensive study in several areas of health. It will enable the student to engage in a health career of his choice and acquire sufficient knowledge of health so that he may be able to enjoy a healthful and satisfying life and also develop an understanding in helping those with whom he comes in contact in his work and everyday living. Students desiring training in health occupations need to have a background in science, chemistry, biology, social sciences, and varying degrees of mathematics, and possess the emotional stability required by the profession.

North Carolina resident applications for the Medical and Dental Programs must be submitted during the month of January each year. Non-residents of North Carolina will be considered only in the events vacancies exist after the month of January.

In the event that any curriculum has more qualified applicants than can be served, selection criteria will be imposed. Applicants will be provided specific information regarding criteria.

The following areas of study confer an Associate in Applied Science degree:

- Associate Degree Nursing
- Dental Hygiene
- Medical Laboratory Technician
- Radiologic Technology

The following areas of study award a diploma:

- Dental Assisting
- Medical Laboratory Assistant
- Practical Nurse Education

For additional information about any of the above areas of study, see the specific area in this catalogue.

Associate Degree Nursing

Nursing is a profession devoted to conserving life and promoting health. This two year program consists of the study of nursing theory and practice as well as such general education subjects as English and the natural and social sciences. Selected patient experiences are provided in local general hospitals and other community health facilities. These experiences include the care of adults, children, mothers and their infants.

The Associate in Applied Science degree is awarded upon successful completion of this program. The graduate is eligible to take the state examination for licensure as a registered nurse.

CRITERIA FOR STUDENT SELECTION

- 1. Acceptable scores on all entrance tests.
- 2. High school diploma or approved high school equivalency certificate.
 - a. High school requirements:
 - 1. 4 units of English
 - 2. 2 units of mathematics — one of which must be algebra.
 - 3. Chemistry and biology
- 3. Interview with department faculty member.
- 4. Transcripts of high school and any post high school education.
- 5. Three personal references
- 6. Acceptable reports of medical and dental examinations.
- 7. Age: 18 to 45 years of age (individual exceptions made by faculty).

NOTE: The North Carolina Board of Nursing may deny license to individuals “convicted of a felony or any other crime involving moral turpitude.”

Associate Degree Nursing

			Hrs. Per Week		Credit
			Class	Lab	Hrs.
First Quarter					
CHM	101	Fundamentals of Physiological Chemistry	3	2	4
ENG	101	Fundamentals of English	3	0	3
BIO	101	Anatomy and Physiology I	4	3	5
NUR	101	Fundamentals of Nursing I	4	5	6
			14	10	18
Second Quarter					
PSY	101	Introduction to Psychology	3	0	3
ENG	102	Composition	3	0	3
BIO	102	Anatomy and Physiology II	4	3	5
NUR	103	Fundamentals of Nursing III	4	8	7
			14	11	18

			Hrs. Per Week		Credit
Third Quarter			Class	Lab	Hrs.
ENG	103	Report Writing	3	0	3
BIO	103	Microbiology	4	3	5
PSY	203	Abnormal Psychology	3	0	3
NUR	105	Fundamentals of Nursing III	4	8	7
			<u>14</u>	<u>11</u>	<u>18</u>
Fourth Quarter					
SOC	201	Sociology	3	0	3
*NUR	207	Maternity Nursing	4	6	6
*NUR	206	Psychiatric Nursing	4	6	6
			<u>11</u>	<u>12</u>	<u>15</u>
Fifth Quarter					
NUR	208	Growth and Development	3	0	3
NUR	210	Nursing in Physical and Mental Illness I	8	16	14
			<u>11</u>	<u>16</u>	<u>17</u>
Sixth Quarter					
ENG	204	Oral Communications	3	0	3
NUR	211	Nursing Trends and Professional Ethics	3	0	3
NUR	212	Nursing in Physical and Mental Illness II	8	16	14
			<u>14</u>	<u>16</u>	<u>20</u>
Seventh Quarter					
NUR	213	Nursing Leadership	2	0	2
NUR	214	Nursing in Physical and Mental Illness III	7	18	13
			<u>9</u>	<u>18</u>	<u>15</u>

*Mini-courses

Dental Hygiene

The dental hygienist is a valued and effective member of the dental health team. As the only licensed dental auxiliary, she performs specific intra-oral procedures which are directed toward the prevention of oral disease. Clinical dental hygiene services include: removing deposits and stains from the teeth, applying medicaments to the teeth, taking and recording medical and dental histories, charting existing conditions of the teeth and supporting tissues, exposing and processing x-ray film, and educating individuals and groups in obtaining maximum oral health.

The curriculum provides comprehensive educational experiences through lectures and clinical experience to qualify the graduate for the practice of dental hygiene in accordance with the educational, professional, ethical and legal standards of the Commission on Dental Education of the American Dental Association, and the North Carolina State Board of Dental Examiners. Graduates in the curriculum receive the Associate Degree of Applied Science.

CRITERIA FOR STUDENT SELECTION

1. High School diploma or approved equivalency certificate:
 - A. High School requirements
 1. 4 units of English
 2. 2 units of algebra, or one unit of algebra and one plane geometry
 3. 1 unit of chemistry
 4. 1 unit of biology
 - B. High School recommendations:
 1. College preparatory courses
 2. Science oriented courses
2. Minimum scores on all admission tests.
3. Health records required 30 days before the first day of classes for final admission to the program:
 - a. Physical and dental examinations
 - b. Chest x-ray
 - c. Blood test
 - d. Current immunizations
4. Transcripts of high school and any post-high school education.
5. Three letters of reference.
6. Interview with Dental Hygiene Review Board.

First Quarter			Hrs. Per Week Class	Lab	Credit Hrs.
DHY	101	Dental Anatomy	2	4	4
DHY	110	Preclinical Dental Hygiene	3	2	4
BIO	101	Human Anatomy and Physiology	4	3	5
CHM	101	Fundamentals of Physiological Chemistry	3	2	4
ENG	101	Fundamentals of English	3	0	3
			15	11	20
Second Quarter					
DHY	102	Head & Neck Anatomy	3	0	3
DHY	111	Dental Hygiene I	3	6	5
DHY	121	Embryology & Oral Histology	3	0	3
BIO	102	Human Anatomy and Physiology	4	3	5
ENG	102	Composition	3	0	3
			16	9	19
Third Quarter					
DHY	103	Dental Roentgenology	2	4	4
DHY	112	Dental Hygiene II	2	9	5
DHY	114	General & Oral Pathology	3	0	3
BIO	103	Microbiology	4	3	5
ENG	204	Oral Communications	3	0	3
			14	16	20
Fourth Quarter					
DHY	201	Chairside Assisting	1	2	2
DHY	206	Dental Materials	3	4	5
DHY	212	Dental Hygiene III	2	9	5
NUT	202	Nutrition	3	0	3
			9	15	15
Fifth Quarter					
DHY	205	Periodontology	2	0	2
DHY	213	Dental Hygiene IV	2	15	7
DHY	221	Pharmacology	3	0	3
PSY	101	Psychology	3	0	3
			10	15	15
Sixth Quarter					
DHY	203	Community Dental Health I	3	0	3
DHY	214	Dental Hygiene V	3	15	8
DHY	225	Office Management/Ethics and Jurisprudence	4	0	4
SOC	201	Sociology	3	0	3
			13	15	18
Seventh Quarter					
DHY	215	Dental Hygiene VI	2	15	7
DHY	222	Community Dental Health II	1	3	2
ECO	107	Economics	3	0	3
ENG	103	Report Writing	3	0	3
			9	18	15

Dental Assisting

The primary function of the dental assistant is to serve as the chairside assistant to the dentist. Here she plays an active and intergral role in dental procedures by preparing patients for treatment, setting out instruments in the order in which they are to be used, keeping the operation field clear during treatment, mixing restorative materials and dental cements, and passing these materials and instruments to the dentist as he needs them.

The trained dental assistant also checks equipment, sterilizers instruments and engages in such laboratory work as making study models of teeth, casting inlays, processing x-ray films and mounting them in appropriate holders. In many offices the dental assistant also serves as receptionist and office manager, schedules appointments and keeps records.

The Dental Assisting Program at Asheville-Buncombe Technical Institute has been accredited by the Council on Dental Education of the American Dental Association.

CRITERIA FOR STUDENT SELECTION

- 1. Acceptable score on all pre-entrance tests.
- 2. High school graduation or G.E.D. certificate.
- 3. Character references (three).
- 4. Reports of medical and dental examinations.
- 5. Interview with Dental Assisting faculty.
- 6. Demonstrate an interest in science and mathematics.
- 7. Typewriting (proficiency of 40 words per minute or student will be required to enroll in a typing course.)

Dental Assisting

			Hrs. Per Week			Credit Hrs.
			Class	Lab	Clin.	
First Quarter						
DEN	102	Introduction to Dental Assisting	3	0	0	3
DEN	103	Dental Materials I	1	3	0	2
DEN	104	Oral Anatomy & Histology	2	2	0	3
DEN	123	Oral Health Education	1	2	0	2
BIO	109	Anatomy and Physiology	2	0	0	2
ENG	101	Fundamentals of English	3	0	0	3
PSY	101	Introduction to Psychology	3	0	0	3
			15	7	0	18

			Hrs. Per Week			Credit Hrs.
Second Quarter			Class	Lab	Clin.	
DEN	120	Clinical Science I	3	3	3	6
DEN	122	Dental Materials II	2	2	0	3
DHY	102	Head and Neck Anatomy	3	0	0	3
DHY	103	Dental Roentgenology	2	4	0	4
BIO	110	Microbiology	2	0	0	2
ENG	204	Oral Communications	3	0	0	3
			15	9	3	21
Third Quarter						
DEN	130	Clinical Science II	2	0	8	6
DEN	131	Dental Office Management	5	0	3	6
DEN	132	Dental Office Practice I	0	0	12	4
DEN	133	Office Emergencies & First Aid	1	0	0	1
DEN	134	Pharmacology	1	0	0	1
DHY	114	General & Oral Pathology	3	0	0	3
			12	0	23	21
Fourth Quarter						
DEN	140	Dental Office Practice II	0	0	20	7
DEN	141	Dental Assistant Seminar	3	0	0	3
DEN	142	Diet and Nutrition	2	0	0	2
			5	0	20	12

Medical Laboratory Technology

The Medical Laboratory Technician program is designed in two stages providing training leading to a career either as a Medical Laboratory Assistant or Medical Laboratory Technician.

Stage One is a block of four quarters of basic laboratory instruction common to either the Medical Laboratory Assistant or Medical Laboratory Technician. At the conclusion of Stage One the students are eligible to take the national examination of the Board of Certified Laboratory Assistants., Those passing the examination are awarded the title of Certified Laboratory Assistant.

At the conclusion of Stage One the student may elect to continue with Stage Two, consisting of four additional quarters fulfilling requirements for the Associate Degree. At the conclusion of Stage Two the students are eligible to take the national examination of the Board of Medical Laboratory Technicians.

The Medical Laboratory Technician Program provides specialized training for employment in hospital laboratories and medical clinics. The MLT will be able to perform more complicated laboratory procedures than the Medical Laboratory Assistant. He works under the supervision of a Medical Technologist (ASCP) and a pathologist or other clinical scientist, although at times he is capable of working without immediate supervision. His skills should enable him to function efficiently in such areas of the medical laboratory as chemistry, microbiology, serology, urinalysis, hematology and the blood bank.

The entire eight quarters of the course is an intergrated type program having general academic, medical laboratory courses, and clinical experience in the Clinical Laboratory at Memorial Mission Hospital. Only persons with a high sense of responsibility and ability to do careful, scientific work should consider this field of technology.

During the Stage Two period of training, clinical classes will be scheduled on one of three shifts; 7:00 A.M. - 3:00 P.M., 3:00 P.M. - 11:00 P.M. or 11:00 P.M. - 7:00 A.M.

Medical Laboratory Assistant

The Medical Laboratory Assistant program provides specialized training for employment in hospital laboratories and medical clinics. The laboratory assistant works under the direct supervision of a medical technologist, a pathologist, or a qualified physician, performing routine laboratory procedures in bacteriology, blood banking, chemistry, hematology, parasitology, serology and urinalysis. Specific tasks might include: collecting blood specimens; grouping and typing blood; preparing and staining slides of micro-organisms; concentrating specimens for parasitologic study; analyzing blood and body fluids, and performing electrocardiograms.

The four quarter course is twelve months in length and includes classroom instruction in addition to laboratory and clinical experience at Memorial Mission Hospital. The student who completes the requirements will receive a diploma from the Institute.

Graduates of this curriculum are eligible to take the national examination of the Board of Certified Laboratory Assistants. Those passing the examination are awarded the title of Certified Laboratory Assistant.

During the one year period of training, the student laboratory assistant will be expected to take night call with hospital personnel and work periodically on the weekends. Call and weekend work will not necessarily follow the calendar in the school catalogue.

Graduates of the curriculum may elect to continue into the Medical Laboratory Technician Stage II, if the student is qualified and there is space in the Medical Laboratory Technician class. (For further information refer to the Medical Laboratory Technician Curriculum.)

Only persons with a high sense of responsibility and the ability to do careful, scientific work should consider the field of Medical Laboratory Technology.

CRITERIA FOR STUDENT SELECTION

1. Acceptance score on all pre-entrance tests.
2. High School graduation or G.E.D. certificate.
 - a. Chemistry and algebra required.
 - b. Biology strongly recommended.
3. Character references (three).

4. Reports of medical and dental examinations.
5. Interview with Medical Laboratory Assistant's faculty.
6. Demonstrate an interest in science and mathematics.
7. A minimum grade of "C" in all MLA, science, and math courses required in the first four quarters is necessary for admission to the MLT program.

Medical Laboratory Technology (8 Quarters)

Medical Laboratory Assistant (1st 4 Quarters)

			Hrs. Per Week			Credit Hrs.
			Class	Lab	Clin.	
First Quarter						
MLA	100	Introduction to Medical Laboratory Technology	3	0	0	3
MLA	101	Clinical Experience I	0	0	24	8
MLA	102	Hematology I	1	2	0	2
ENG	101	Fundamentals of English	3	0	0	3
BIO	106	Structure and Function	2	0	0	2
MAT	106	Introduction to Mathematics	5	0	0	5
			14	2	24	23
Second Quarter						
MLA	105	Hematology II	2	2	0	3
MLA	106	Urinalysis	1	2	0	2
MLA	107	Clinical Chemistry I	1	2	0	2
MLA	108	Clinical Experience II	0	0	24	8
ENG	102	Composition	3	0	0	3
			7	6	24	18
Third Quarter						
MLA	110	Hematology III	2	2	0	3
MLA	112	Clinical Chemistry II	1	2	0	2
MLA	113	Clinical Experience III	0	0	24	8
MLA	114	Immunohematology I	2	2	0	3
MLA	115	Bacteriology I	1	2	0	2
			6	8	24	18
Fourth Quarter						
MLA	116	Bacteriology II	1	2	0	2
MLA	118	Immunohematology II	1	2	0	2
MLA	119	Clinical Experience IV	0	0	24	8
MLA	120	Parasitology	1	2	0	2
MLA	121	Hematology IV	1	2	0	2
			4	8	24	16
Fifth Quarter						
MLT	200	Immunohematology III	2	2	0	3
MLT	201	Bacteriology III	1	2	0	2
MLT	202	Clinical Experience V	0	0	24	8
PSY	101	Introduction to Psychology	3	0	0	3
			6	4	24	19

Sixth Quarter			Hrs. Per Week			Credit
			Class	Lab	Clin.	Hrs.
MLT	205	Hematology V	2	2	0	3
MLT	206	Clinical Experience VI	0	0	24	8
BIO	107	Anatomy and Physiology I	4	0	0	4
CHM	103	MLT Chemistry I	3	2	0	4
			<hr/>	<hr/>	<hr/>	<hr/>
			9	4	24	19
Seventh Quarter			Hrs. Per Week			Credit
			Class	Lab	Clin.	Hrs.
MLT	208	Clinical Chemistry Values	2	0	0	2
MLT	209	Clinical Experience VII	0	0	24	8
ENG	103	Report Writing	3	0	0	3
CHM	104	MLT Chemistry II	3	2	0	4
BIO	108	Anatomy and Physiology II	4	0	0	4
			<hr/>	<hr/>	<hr/>	<hr/>
			12	2	24	21
Eighth Quarter			Hrs. Per Week			Credit
			Class	Lab	Clin.	Hrs.
MLT	211	Instrumentation	3	0	0	3
MLT	212	Clinical Experience VIII	0	0	24	8
ENG	204	Oral Communications	3	0	0	3
SOC	201	Sociology	3	0	0	3
			<hr/>	<hr/>	<hr/>	<hr/>
			9	0	24	17

Practical Nurse Education

The accelerated growth of population of North Carolina and rapid advancement in medical technology demand an increased number of well-trained personnel for health services. Realizing this need, the State Department of Community Colleges, in conjunction with local hospitals, administers programs of practical nurse education in local systems, community colleges and technical institutes.

The aim of the Practical Nurse Education program is to prepare qualified persons for participation in care of patients of all ages, in various states of dependency, and with a variety of illness conditions.

Throughout the one year program, the student is expected to progress in the acquisition of knowledge, the performance of nursing skills, and adjustment to the nursing situation.

Graduates of this accredited program of practical nurse education are eligible to take the licensing examination given by the North Carolina Board of Nursing. A passing score entitles the individual to receive a license and to use the legal title "Licensed Practical Nurse." The Licensed Practical Nurse can apply for licensure in other states.

The LPN is prepared to function in a variety of situations: hospitals of all types, nursing homes, clinics, doctor's and dentists' offices and, in some localities, public health facilities. In all situations the LPN functions under supervision of a registered nurse or licensed physician. This supervision may be minimal in situations where the patient's condition is stable and not complex; or it may consist of continuous direction in situations requiring the knowledge and skills of the registered nurse or physician. In the latter situation, the LPN may function in an assisting role in order to avoid assuming responsibility beyond that for which the one year program can prepare the individual.

CRITERIA FOR STUDENT SELECTION

1. Acceptable score on pre-entrance tests.
2. High school graduation or G.E.D. certification.
3. Personal references
4. Reports of medical and dental examinations.
5. Interview with Practical Nurse Education faculty.
6. Expressed interest in Nursing.

NOTE: The State Board of Nursing may deny license to individuals "convicted of a felony or any crime involving moral turpitude".

Practical Nurse Education

			Hrs. Class	Per Week Lab	Clin.	Credit Hrs.
First Quarter						
PNE	1111	Introduction to Nursing	2	0	0	2
PNE	1112	Fundamentals of Nursing	8	2	2	10
PNE	1117	Nutrition	4	0	0	4
BIO	111	Basic Life Sciences	4	3	0	5
ENG	101	Fundamentals of English	3	0	0	3
			21	5	2	24
Second Quarter						
PNE	1120	Clinical I Medical-Surgical	0	0	15	5
PNE	1122	Medical-Surgical Nursing I	12	0	0	12
PNE	1123	Maternal and Infant Care	4	0	0	4
PNE	1124	Pediatric Nursing I	2	0	0	2
			18	0	15	23
Third Quarter						
PNE	1130	Clinical II Obstetrics & Pediatrics	0	0	21	7
PNE	1132	Medical-Surgical Nursing II	10	0	0	10
PNE	1134	Pediatric Nursing II	2	0	0	2
			12	0	21	19
Fourth Quarter						
PNE	1140	Clinical III Medical-Surgical	0	0	21	7
PNE	1142	Medical-Surgical Nursing III	10	0	0	10
PNE	1144	Vocational Adjustments	2	0	0	2
			12	0	21	19

Radiologic Technology

The changes created by new techniques have resulted in demands for increased knowledge on the part of the radiologic technologist. In addition to mastering radiologic technique, the student must also become familiar with other sources of radiation in order to properly assist the physician. The Associate Degree curriculum provides opportunity for training in this exacting science.

The radiologic technologist may assist Radiologist in examining for broken bones, tumors or malfunctioning organs, and under the supervision of a physician, assist in treating diseased or affected areas of the body. Other tasks may include maintaining equipment, ordering supplies, keeping records of patient's films and reports, and darkroom maintenance.

Exposure of a pregnant female to radiation must be avoided because of the possible harmful effects to the developing fetus. Since the practical work of student technologists involves some exposure to radiation, it is felt that this portion of training should be discontinued for any female student known to be pregnant. In some instances, it may be possible for the student to continue to attend classes and complete practical work at a later date.

Students enrolled in the Radiologic Technology Program will receive clinical training at the major hospitals in the area. Because of the limited space in the existing clinical facilities, students will be divided into two groups: one-half will receive their clinical experience in the morning and the other half during the afternoon. This will be done on a rotational basis.

During the two year period of training, student technologists will be expected to work on the weekends on a rotational basis. WEEKEND WORK WILL NOT NECESSARILY FOLLOW THE CALENDAR IN THE SCHOOL CATALOG.

Prior to acceptance, student must have complete physical examination which includes (1) chest x-ray, (2) dental examination, (3) blood tests, and (4) immunization shots.

After completion of two years of study, the student may take the American Registry Examination which is recognized by the American Medical Association. Successful passing of this examination, qualifies the student to use the abbreviation, R.T., Registered Technologist.

CRITERIA FOR STUDENT SELECTION

1. High school diploma or G.E.D. Certificate
 - a. Biology, Algebra, Physics strongly recommended
2. Minimum scores on all pre-entrance tests
3. Interview with Radiologic Technology Faculty
4. Interest in Radiologic Technology
5. Letters of recommendation (three)

Radiologic Technology

			Hrs. Per Week Class	Lab	Credit Hrs.
First Quarter					
RAD	101	Positioning I	1	1	2
RAD	102	Radiographic Technique I	2	2	3
RAD	105	Film Critique I	1	0	1
RAD	106	Clinical Technique I	0	24	8
RAD	135	Radiological Anatomy I	2	0	2
RAD	110	Orientation to Radiology	1	0	1
NUR	125	Nursing Procedures	1	0	1
			<hr/> 8	<hr/> 27	<hr/> 18
Second Quarter					
RAD	111	Positioning II	1	1	2
RAD	112	Radiographic Technique II	1	1	2
RAD	113	Film Critique II	1	0	1
RAD	114	Clinical Technique II	0	24	8
RAD	136	Radiological Anatomy II	2	0	2
BIO	107	Anatomy & Physiology I	4	0	4
			<hr/> 9	<hr/> 26	<hr/> 19
Third Quarter					
RAD	121	Positioning III	1	1	2
RAD	123	Film Critique III	1	0	1
RAD	124	Clinical Technique III	0	26	9
RAD	104	Radiographic Terminology	1	0	1
RAD	200	Topographic Anatomy	1	0	1
BIO	108	Anatomy & Physiology II	4	0	4
PSY	101	Introduction to Psychology	3	0	3
			<hr/> 11	<hr/> 27	<hr/> 21
Fourth Quarter					
RAD	131	Positioning IV	1	1	2
RAD	132	Film Critique IV	1	0	1
RAD	134	Clinical Technique IV	0	30	10
RAD	225	Principles of Radiation Therapy & Protection	1	0	1
PHY	105	Physics	4	0	4
			<hr/> 7	<hr/> 31	<hr/> 18
Fifth Quarter					
RAD	201	Positioning V — Emergency Tech	1	1	2
RAD	202	Film Critique V	1	0	1
RAD	203	Clinical Technique V	0	27	9
RAD	205	Medical Use of Radioisotopes	1	1	2
ENG	101	Fundamentals of English	3	0	3
SOC	201	Sociology	3	0	3
			<hr/> 9	<hr/> 29	<hr/> 20

Sixth Quarter			Hrs. Per Week		Credit
			Class	Lab	Hrs.
RAD	210	Positioning VI	1	1	2
RAD	211	Film Critique VI	1	0	1
RAD	212	Clinical Technique VI	0	30	10
RAD	214	Equipment & Maintenance	1	0	1
RAD	215	A Survey of Medical & Surgical Diseases	1	0	1
ENG	102	Composition	3	0	3
			<hr/> 7	<hr/> 31	<hr/> 18
Seventh Quarter					
RAD	221	Positioning VII — Opaque Media	1	1	2
RAD	222	Film Critique VII	1	0	1
RAD	223	Clinical Technique VII	0	30	10
RAD	204	Adv. Radiographic Technique I	1	1	2
ENG	103	Report Writing	3	0	3
			<hr/> 6	<hr/> 32	<hr/> 18
Eighth Quarter					
RAD	231	Positioning VIII — Intra-Oral Rad	1	1	2
RAD	232	Film Critique VIII	1	0	1
RAD	233	Clinical Technique VIII	0	32	11
RAD	213	Adv. Radiographic Technique II	1	1	2
ENG	204	Oral Communications	3	0	3
			<hr/> 6	<hr/> 34	<hr/> 19

DIVISION OF VOCATIONAL- INDUSTRIAL EDUCATION

DIPLOMA AWARDED

The following areas of study are included in the Division of Vocational-Industrial Education:

Air Conditioning-Refrigeration

Automotive Mechanics

Building Construction

Diesel Engines and Hydraulic Systems

Machine Shop

Tool and Die Making

Welding

The division will offer a variety of courses on a four quarter basis. The areas of study reflect the employment opportunities in the western part of North Carolina. These curriculums require one full year for completion. If a student elects to enroll in the division through evening school because of his work load, the time required for completion will be doubled. The evening division will offer up to sixteen hours per week in a particular area of study. The full time schedule will require approximately thirty hours per week.

The student enrolled in the division will spend most of his time in the shop working under actual industrial conditions. The rest of the time will be in the classroom and laboratory in related subjects. The division will require each student to demonstrate an ability to do work in his particular trade. Emphasis will be placed on becoming proficient in the use of machines, instruments, and other equipment related to a particular area of work.

Certain courses will be required of every student irrespective of his curriculum. These course will enhance the student's ability to become a total individual with a proper attitude toward his work. A thorough understanding of the American system of economics as it relates to the free enterprise system and corporate structure will be required of every student.

Specific Entrance Requirements For Vocational-Industrial Program

1. High school graduation or the equivalent is normally required for admission; however, exceptions may be made in certain circumstances.
2. Must furnish transcript of work attempted.
3. Must demonstrate suitability for industrial - vocational training as determined by appropriate tests.
4. Must demonstrate proficiency in mathematics as the industrial-vocational curriculum may require.
5. Must have a personal interview with school representatives.
6. The Institute may require a complete physical examination.

Tool & Die Making Entrance Requirements

To advance from the Machine Shop curriculum to the Tool and Die Making curriculum, the student must be a graduate of the Machine Shop program and maintain a "B" average in MES 1103, MES 1104, MAT 1104 and MAT 1123. Any exceptions to these requirements will be decided by a committee of the following:

1. Chairman of Tool & Die Making Department
2. Chairman of Machine Shop Department
3. Appropriate mathematics instructor

Air Conditioning And Refrigeration

In recent years the use of air conditioning and refrigeration equipment has increased tremendously. Practically all new building construction for business and commercial use have "all year" comfort systems. Many houses now have air conditioning and the trend is toward greater use of "all year" systems of cooling and heating. The food industry is requiring greater use of refrigeration systems in freezing, storage, and display of products. With this great upswing in the use of air conditioning and refrigeration equipment, a greater demand is made on trained personnel to install, operate, maintain and service this equipment.

This curriculum is designed to give the students practical knowledge that will enable them to become capable service men in the industry. The principle objective has been to outline the required technical and related instruction to enable them to understand the

basic principles involved in the construction, operation, and maintenance of equipment. Job opportunities exist with companies that specialize in air conditioning, automatic heating, sheet metal and commercial refrigeration installation and service. The service man is employable in areas of sales, maintenance, installation and in the growing field of truck and trailer refrigeration.

OCCUPATIONAL OPPORTUNITIES

The air conditioning and refrigeration mechanic installs, inspects, maintains, services and repairs domestic and commercial equipment, connects motors, compressors, temperature controls, humidity controls and circulating fans to control panels, tests systems, observes pressure and vacuum gauges and adjusts controls to insure proper operation.

Air Conditioning and Refrigeration

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
MAT	1101	Fundamentals of Mathematics	5	0	0	5
WLD	1101	Basic Welding	1	2	0	2
ENG	1101	Reading Improvement	2	0	0	2
ELC	1117	Basic Electricity	3	2	0	4
AHR	1121	Fundamentals of Refrigeration: Domestic	3	0	12	7
			14	4	12	20
Second Quarter						
MAT	1103	Geometry	3	0	0	3
ENG	1102	Communication Skills	3	0	0	3
ELC	1118	Applied Electricity	3	2	0	4
BPR	1108	Basic Mechanical Blueprint Reading	0	3	0	1
AHR	1122	Fundamentals of Refrigeration: Commercial	3	0	12	7
			12	5	12	18
Third Quarter						
PSY	1101	Human Relations	3	0	0	3
BPR	1116	Blueprint Reading: Air Conditioning	1	3	0	2
AHR	1123	Principles of Air Conditioning	4	0	9	7
AHR	1124	Principles of Heating: Fuels and Burners	3	0	6	5
			11	3	15	17
Fourth Quarter						
PHY	1101	Applied Science	3	2	0	4
BUS	1103	Small Business Operations	3	0	0	3
AHR	1126	All Year Comfort Systems And A.C. Servicing	4	0	9	7
AHR	1127	Duct Construction and Maintenance	3	0	6	5
			13	2	15	19

Automotive Mechanics

This is a one-year program providing thorough training in the theoretical as well as manual skills in servicing, testing, and diagnosing. All phases of the electrical system, the power plant, the power train, and the hydraulic braking system will be studied.

The courses are arranged in a sequence that gives the student the required technological and special courses as they are needed to coordinate laboratory experiences.

Emphasis is placed on the mechanical parts and operation of the various automobile units. Trouble shooting and servicing of the live project are also stressed.

OCCUPATIONAL OPPORTUNITIES

Auto mechanic, truck and bus mechanic, shop foreman, maintenance supervisor, dealer service manager, sales technician, factory representative, and experimental lab work are among those occupational opportunities awaiting graduates of the Automotive Mechanics curriculum.

Automotive Mechanics

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
ENG	1101	Reading Improvement	2	0	0	2
MAT	1101	Fundamentals of Mathematics	5	0	0	5
PSY	1101	Human Relations	3	0	0	3
AUT	1101	Internal Combustion Engine	3	0	12	7
			13	0	12	17
Second Quarter						
ENG	1102	Communication Skills	3	0	0	3
BPR	1108	Basic Mechanical Blueprint				
		Reading	0	3	0	1
PHY	1101	Applied Science	3	2	0	4
AUT	1102	Engine Electrical and				
		Fuel Systems	5	0	12	9
			11	5	12	17
Third Quarter						
PHY	1102	Applied Science	3	2	0	4
WLD	1101	Basic Welding	1	2	0	2
AUT	1121	Braking Systems	2	0	3	3
AUT	1123	Automotive Chassis and				
		Suspension Systems	3	0	9	6
			9	4	12	15
Fourth Quarter						
BUS	1103	Small Business Operations	3	0	0	3
AUT	1124	Automotive Power Train				
		Systems	1	0	9	4
AUT	1125	Automotive Services	3	0	9	6
AUT	1128	Automotive Air Conditioning	2	0	3	3
			9	0	21	16

Building Construction

This curriculum is designed to subject a student to the fundamentals of carpentry work and the basic procedures of cabinet making. Students will begin with hand tools and progress into the wood-working machines found in a cabinet shop. The carpentry work will begin with the masonry foundation and progress to the finished building. Some consideration will be given to industrial buildings as compared to residential buildings.

Each student will have an opportunity to review the work of other skilled tradesmen such as plumbing and heating, electrical, masonry, and painting finishing.

With the tremendous population growth and expanding industry this area will serve a need that has unlimited potential.

OCCUPATIONAL OPPORTUNITIES

Occupational opportunities will be found with private builders, residential builders, general contractors, cabinet shops, and in many industries that maintain their own buildings.

Building Construction

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
ENG	1101	Reading Improvement	2	0	0	2
MAT	1101	Fundamentals of Mathematics	5	0	0	5
CAR	1101	Carpentry I	5	0	15	10
BPR	1107	Blueprint Reading: Construction Trades	0	3	0	1
			12	3	15	18
Second Quarter						
ENG	1102	Communication Skills	3	0	0	3
MAT	1103	Geometry	3	0	0	3
CAR	1102	Cabinetmaking I	5	0	15	10
BPR	1109	Blueprint Reading Construction Trades	0	3	0	1
			11	3	15	17
Third Quarter						
PSY	1101	Human Relations	3	0	0	3
DFT	1127	Construction Trades Drafting I	1	5	0	3
CAR	1103	Carpentry II	0	0	12	4
CAR	1104	Cabinetmaking II	0	0	9	3
			4	5	21	13
Fourth Quarter (2 Evenings Per Week)						
BUS	1103	Small Business Operations	3	0	0	3
DFT	1128	Construction Trades — Drafting II	0	3	0	1
CAR	1105	Supervised Work Experience	2	0	24	10
			5	3	24	14

Diesel Engines And Hydraulic Systems

This curriculum is constructed to give each student a foundation in diesel engine and hydraulic systems and go into the areas of electrical, steering, fuel, suspension, cooling, and lubricating. The various types of power trains will be considered.

The area of heavy equipment maintenance offers a wide variety of occupational opportunities. This program will give a student the basic knowledge and the industry will provide the opportunity to apply this knowledge in a specific area of work. Preventive maintenance for all types of heavy equipment will be stressed throughout the entire course. Some knowledge of the operation of heavy equipment will be presented.

OCCUPATIONAL OPPORTUNITIES

Opportunities in heavy equipment maintenance will be found within dealerships, trucking companies, public transportation companies, general contractors, farm implement dealers, and industries that maintain heavy equipment.

Diesel Engines and Hydraulic Systems

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
HEV	1101	Diesel Engine Theory and Practice	3	0	12	7
ENG	1101	Reading Improvement	2	0	0	2
MAT	1101	Fundamentals of Mathematics	5	0	0	5
MEC	1101	Elementary Hydraulic Principles	2	3	0	3
			12	3	12	17
Second Quarter						
HEV	1102	Diesel-Electrical, Fuel, Lubricating and Cooling Systems	2	0	15	7
WLD	1102	Basic Welding	2	0	3	3
PHY	1101	Applied Science	3	2	0	4
			7	2	18	14
Third Quarter						
HEV	1103	Diesel - Hydraulic Systems, Steering, Suspension, Braking, Injector Testing and Servicing	3	0	15	8
BUS	1103	Small Business management	3	0	0	3
PHY	1102	Applied Science	3	2	0	4
			9	2	15	15
Fourth Quarter						
HEV	1105	Diesel Service and Repair	3	0	9	7
HEV	1107	Power Train Systems	2	0	6	4
ENG	1102	Communication Skills	3	0	0	3
PSY	1101	Human Relations	3	0	0	3
			11	0	15	17

Machine Shop

The two objectives of the machine shop course are to help men now in machine shops get a solid working knowledge of overall machine shop practice and to provide men not working in machine shops with a broad understanding of machine tools and shop practices. This course presents in a practical manner the details of such basic shop operations as bench work, layout, drilling, lathe work, milling, shaping, planning, broaching, and grinding. The course also covers the operating principles of machine tools, the use of measuring and testing instruments, and blueprint reading.

OCCUPATIONAL OPPORTUNITIES

Occupational opportunities are found in metal working factories, federal government installations, machine shops, maintenance shops, utility companies, and a wide variety of mechanical and technical activities.

Machine Shop

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
ENG	1101	Reading Improvement	2	0	0	2
BPR	1104	Blueprint Reading: Mechanical	0	3	0	1
MAT	1101	Fundamentals of Mathematics	5	0	0	5
PSY	1101	Human Relations	3	0	0	3
MES	1101	Machine Shop	3	0	12	7
			13	3	12	18
Second Quarter						
ENG	1102	Communications Skills	3	0	0	3
BPR	1105	Blueprint Reading: Mechanical	0	3	0	1
MAT	1103	Geometry	3	0	0	3
PHY	1101	Applied Science	3	2	0	4
MES	1102	Machine Shop	3	0	12	7
			12	5	12	18
Third Quarter						
BPR	1106	Blueprint Reading: Mechanical	0	3	0	1
MAT	1104	Trigonometry	3	0	0	3
PHY	1102	Applied Science	3	2	0	4
MES	1103	Machine Shop	3	0	12	7
MEC	1115	Treatment of Ferrous and Non-Ferrous Metals	1	0	3	2
			10	5	15	17
Fourth Quarter						
MAT	1123	Machinist Mathematics	3	0	0	3
BUS	1103	Small Business Operations	3	0	0	3
WLD	1101	Basic Welding	1	2	0	2
MES	1104	Machine Shop	3	0	12	7
			10	2	12	15

Tool And Die Making

The tool and die maker is the foundation man of many industries. This individual is highly skilled and possesses a tremendous depth of technical knowledge. This curriculum is designed to start an advanced machinist into the elementary requirements of tool and die making and progress into more complex dies, jigs and fixtures, gages, and other areas.

• This course will enable the advanced machinist to compare the machines found in a tool and die shop with those found in the average machine shop. Each student will be required to become highly proficient in the use of each machine used in tool and die making. The related courses are designed to give the student an opportunity to advance his knowledge in mathematics, strength of materials, drafting, and hydraulics and pneumatics. Normally, graduates of the Tool and Die Making Curriculum enter indentured apprenticeship programs, with advanced standing, in order to become a Master Tool and Die Maker.

OCCUPATIONAL OPPORTUNITIES

Occupational opportunities are found in metal working industries, government installations, job shop, captive tool rooms, maintenance shops, and a wide variety of other industries using tools, dies, jigs, and fixtures for repetitive production products.

Associate of Tool and Die - Technical Diploma Tool and Die Making

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
Fifth Quarter						
DFT	1207	General Machine Drafting	1	5	0	3
MAT	1203	Trigonometry	5	0	0	5
TDM	1201	Machine Processes	3	0	12	7
			9	5	12	15
Sixth Quarter						
ELC	1201	Electricity-Industrial	2	3	0	3
MAT	1204	Compound Angles and Curves	5	0	0	5
TDM	1202	Machine Processes	3	0	12	7
MEC	1203	Metallurgy	3	0	0	3
			13	3	12	18
Seventh Quarter						
BPR	1208	Blueprint Reading: Tool and Die	2	3	0	3
TDM	1204	Machine Processes	3	0	12	7
MEC	1205	Strength of Materials	5	0	0	5
MEC	1209	Hydraulics and Pnuematics	3	0	0	3
			13	3	12	18
Eighth Quarter						
TDM	1206	Machine Processes	3	0	12	7
TDM	1207	Special Problems and Molding	3	4	0	5
DFT	1209	Tool Design and Planning	2	3	0	3
			8	7	12	15

Welding

The purpose of this course is to provide a sound training program of the skills involved in welding along with a background of technical information needed by the modern welder.

The curriculum is designed to give the student a sound foundation in the principles, practices, and usages of both gas and electric welding in modern industry. At the same time he will be given practice in the welding skills. In the shop, theory and practice are combined under the guidance of an instructor thoroughly competent in the trade. In addition, instruction is given in the technical fields related to welding under the instruction of specialists in the technical fields.

OCCUPATIONAL OPPORTUNITIES

Typical occupational opportunities are found in motor vehicle and equipment plants, air craft industry, construction companies, independent metal working repair shops, steel mills, and self employment.

Welding

			Hrs. Per Week			Credit
			Class	Lab	Shop	Hrs.
First Quarter						
ENG	1101	Reading Improvement	2	0	0	2
BPR	1108	Basic Mechanical				
		Blueprint Reading	0	3	0	1
MAT	1101	Fundamentals of Mathematics	5	0	0	5
MEC	1124	Metallurgy	3	0	0	3
WLD	1120	Oxyacetylene Welding and Cutting	3	0	12	7
			13	3	12	18
Second Quarter						
ENG	1102	Communication Skills	0	3	0	1
BPR	1117	Blueprint Reading: Welding	0	3	0	1
MAT	1103	Geometry	3	0	0	3
ELC	1119	Electricity for Welders	3	2	0	4
WLD	1121	Arc Welding	3	0	12	7
			15	5	12	18
Third Quarter						
PSY	1101	Human Relations	3	0	0	3
MES	1112	Machine Shop Processes	1	3	0	2
WLD	1112	Mechanical Testing & Inspection	1	3	0	2
WLD	1122	Commercial & Industrial Practices	3	0	9	6
WLD	1123	Inert Gas Welding	1	0	3	2
			9	6	12	15
Fourth Quarter						
BUS	1103	Small Business Operations	3	0	0	3
DFT	1126	Pattern Development & Layout	0	3	0	1
WLD	1124	Pipe Welding	3	0	12	7
WLD	1125	Certification Practices	3	0	6	5
			9	3	18	16

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Course Descriptions

Please examine each course description before registering and determine if all prerequisites have been met. Prerequisites shown are those courses which must be successfully completed before attempting further study. In certain cases the department chairman may waive some prerequisite.

**Proficiency examinations will not be available for courses marked with an asterisk because of the nature of the course and in some cases safety requirements in the use of equipment. Any exceptions must be with the approval of the department chairperson.*

AHR-1121 Fundamentals of Refrigeration: Domestic (3 - 0 - 12 - 7)

Terminology, laws of refrigeration, absolute pressure, and absolute temperature, energy conversion units; specific heat, latent heat, and sensible heat; measurement of heat in quantity and intensity; ton of refrigeration, pressure temperature relationships; transfer of heat by conduction, convection, and radiation; elementary refrigeration, refrigeration cycle and domestic refrigeration circuits and controls. Tools, materials, and methods applicable to refrigeration; bending, and joining tubing. Safety practices will be stressed. Emphasis will be placed on domestic equipment because of its basic nature. Prerequisite: None.

AHR-1122 Fundamentals of Refrigeration: Commercial (3 - 0 - 12 - 7)

Commercial refrigeration installation and servicing of display cabinets, walk in coolers and freezer units and mobile refrigeration systems are studied. The use of catalogs are used to calculate heat loads, sizing, and matching system components and a study of circuits and controls, refrigerants, oils, and methods are made. The American Standard Safety Code for refrigeration is studied and its principles practiced. Prerequisite: AHR 1121.

AHR-1123 Principles of Air Conditioning (4 - 0 - 9 - 7)

Work includes the selection of various heating, cooling, and ventilating systems, investigation and control of factors affecting air cleaning, movements, temperature, and humidity. Use is made of the psychrometric chart and sling psychrometer in determining needs to produce optimum temperature and humidity control. Commercial air conditioning equipment is assembled and tested. Heating and cooling loads are estimated and duct pressures are studied. Circuit and controls, both electric and pneumatic, are applied to heating and cooling. Practical sizing and balancing of duct work is performed as needed. Prerequisite: AHR 1122.

AHR-1124 Principles of Heating: Fuels and Burners (3 - 0 - 6 - 5)

Fuels and burners used in supplying heat for various types of heating systems—coal, oil, natural gas, manufactured gas, liquified petroleum gas, and electricity. Experiments in equipment selection, installation, adjustments and servicing will be conducted. Warm air systems, heat emitter, electric heating, forced hot water and steam heating systems, including selection and sizing of equipment—registers, grills, furnaces, boilers, radiators, baseboards, piping, and ducts. Heating layout and specifications for an existing structure or one in blueprint stage will be prepared. Prerequisite: AHR 1123.

AHR-1126 All Year Comfort Systems and A.C. Servicing (4 - 0 - 9 - 7)

Emphasis is placed on the installation, maintenance, and servicing of equipment used in the cleaning, changing, humidification, dehumidification, temperature control, and distribution of air in conditioned spaces. Installation of various ducts and lines needed to connect various components is made. Shop work involves circuit and controls, testing, and adjusting of air conditioning and refrigeration equipment, and locating and correction of equipment failure. Prerequisite: AHR 1124.

AHR-1127 Duct Construction and Maintenance (3 - 0 - 6 - 5)

Study of various duct materials including sheet steel, aluminum, fiber glass, and plastic. Safety, sheet metal hand tools, cutting and shaping machines, fasteners and fabrication practices, layout methods, and development of duct systems. The student will study and service various duct systems and perform repairs including ducts made of fiber glass. A study is made of duct fittings, dampers and regulators, diffusers, heater and air washers, fans, insulation and ventilating hoods. Prerequisite: DFT 1116, AHR 1123. Corequisite: AHR 1126.

AUT-1101 Internal Combustion Engine (3 - 0 - 12 - 7)

Development of a thorough knowledge and ability in using, maintaining, and storing the various hand tools and measuring devices needed in engine repair work. Study of the construction and operation of components of internal combustion engines. Testing of engine performance; servicing and maintenance of engine block, crankshaft, pistons, valves, cams and camshafts, fuel and exhaust systems; cooling systems; proper lubrication; and methods of testing, diagnosing and repairing. Prerequisite: None.

AUT-1102 Engine Electrical and Fuel Systems (5 - 0 - 12 - 9)

A thorough study of the electrical and fuel systems of the automobile. Battery cranking mechanism, generator, ignition, accessories and wiring; fuel pumps, carburetors and fuel injectors. Characteristics of fuels, types of fuel systems, special tools, and testing equipment for the fuel and electrical system. Prerequisite: AUT 1101.

AUT-1121 Braking Systems (2 - 0 - 3 - 3)

A complete study of various braking systems employed on automobiles and light weight trucks. Emphasis is placed on how they operate, proper adjustment, and repair. Prerequisite: PHY 1101.

AUT-1123 Automotive Chassis and Suspension Systems (3 - 0 - 9 - 6)

Principles and functions of the components of automotive chassis. Practical job instruction in adjusting and repairing of suspension, and steering systems. Units to be studied will be shock absorbers, springs, steering systems, steering linkage, and front end alignment. Prerequisite: PHY 1101.

AUT-1124 Automotive Power Train Systems (1 - 0 - 9 - 4)

Principles and functions of automotive power train systems; clutches, transmission gears, torque converters, drive shaft assemblies, rear axles and differentials. Identification of troubles, servicing, and repair. Prerequisites: PHY 1102, AUT 1123.

AUT-1125 Automotive Servicing (3 - 0 - 9 - 6)

Emphasis is on the shop procedures necessary in determining the nature of trouble developed in the various component systems of the automobile. Trouble-shooting of automotive systems, providing a full range of experiences in testing, adjusting, repairing and replacing. Prerequisites: AUT 1123, AUT 1121, AUT 1128.

AUT-1128 Automotive Air Conditioning (2 - 0 - 3 - 3)

General introduction to the principles of refrigeration; study of the assembly of the components and connections necessary in the mechanisms, the methods of operation, and control; proper handling of refrigerants in charging the system. Prerequisite: PHY 1102.

BIO-101 Human Anatomy and Physiology I (4 - 3 - 5)

A study of the structure and normal functions of the human body and its systems with emphasis upon the inter-related functions of various parts and systematic processes in the development of basic physiological principles.

BIO-102 Human Anatomy and Physiology II (4 - 3 - 5)

A continuation of BIO-101. Prerequisite: BIO-101.

- BIO-103 Microbiology** (4 - 3 - 5)
This is a study of microorganisms, pathogenic and non-pathogenic, their relation to disease, community problems and implications for proper health techniques.
- BIO-106 Structure and Function** (2 - 0 - 0 - 2)
Study of anatomy and physiology in relation to disease and medical terminology. Prerequisite: None.
- BIO-107 Anatomy and Physiology I** (4 - 0 - 0 - 4)
A study of the structure and functions of the human body with cellular and topographic emphasis relating to the fields of Medical Lab. and Radiologic Tech.
- BIO-108 Anatomy and Physiology II** (4 - 0 - 0 - 4)
A continuation of BIO 107. Prerequisite: BIO 107.
- BIO-109 Dental Anatomy and Physiology** (2 - 0 - 0 - 2)
A study of the general structure and function of the human body with emphasis upon the head and neck areas.
- BIO-110 Microbiology** (2 - 0 - 0 - 2)
This is a study of the anatomy, morphology, and physiology of bacteria and other microbes. Study is given to dental related microbial infections and diseases. Control and prevention of microbial infections is also emphasized.
- BIO-111 Basic Life Sciences** (4 - 3 - 0 - 5)
A study of the normal structure and function of the human body, including chemical and physical processes. Also included is the study of pathogenic and non-pathogenic microorganisms.
- BPR-1104 Blueprint Reading: Mechanical** (0 - 3 - 0 - 1)
Interpretation and reading the blueprints. Information on the basic principles of the blueprint; lines, views, dimensioning procedures and notes. Prerequisite: None.
- BPR-1105 Blueprint Reading: Mechanical** (0 - 3 - 0 - 1)
Further practice of interpretation of blueprints as they are used in the industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information and processes. Prerequisite: BPR 1104.
- BPR-1106 Blueprint Reading: Mechanical** (0 - 3 - 0 - 1)
Advanced blueprint reading and sketching as related to detail and assembly drawings used in machine shops. The interpretation of drawings of complex parts and mechanisms for features of fabrication, construction and assembly. Prerequisite: BPR 1105.
- BPR-1107 Blueprint Reading: Construction Trades** (0 - 3 - 0 - 1)
How to read pictorial and orthographic drawings. Reading elevations, floor plans, symbols, notes, scales, construction types, interior and exterior details. Prerequisite: None.
- BPR-1108 Basic Mechanical Blueprint Reading** (0 - 3 - 0 - 1)
This course is designed to give the students an understanding of Industrial Blueprints. Emphasis will be placed on the study of basic lines, views, dimensions, notes, symbols, and industrial practice as related to the reading and interpreting of drawings. Prerequisite: None.
- BPR-1109 Blueprint Reading: Construction Trades** (0 - 3 - 0 - 1)
Advanced reading of design variations, construction materials, practices, planning, specifications and steel structures. Prerequisite: BPR 1107.
- BPR-1116 Blueprint Reading: Air Conditioning** (1 - 3 - 0 - 2)
Reading of working prints, exploded drawings, wiring schematics, equipment layouts, shop sketches, building codes, heat systems, standards and symbols. Prerequisite: BPR 1108.

BPR-1117 Blueprint Reading: Welding (0 - 3 - 0 - 1)

A thorough study of trade drawings in which welding procedures are indicated. Interpretation, use and application of welding symbols, abbreviations, and specifications. Prerequisite: BPR 1108.

***BPR-1208 Blueprint Reading: Tool and Die (2 - 3 - 0 - 3)**

A complete and thorough knowledge of tool and die prints will be required. Industrial prints will be used in this course. The difference between production drawings or operation sheets and tools drawing will be presented. Assembly drawings as the piece fits into place will be broken down into each detail print required. Prerequisite: DFT 1207.

BUS-100 Contemporary Business (3 - 2 - 4)

A study of business as the activating element in an enterprise system striving to achieve a combination of human, material, and capital resources to satisfy the needs and wants of people. An introduction to business from the professional (as opposed to the consumer) viewpoint. Prerequisite: None.

BUS-101 Introduction To Business (3 - 2 - 4)

A survey of the business world with particular attention devoted to the structure of the various types of business organizations, methods of financing, internal organization, and management. Prerequisite: None.

BUS-110 Business Machines (1 - 3 - 2)

A general survey of business and office machines. Students will receive training in techniques, processes, operation and application of electronic (ten-key display and printer) calculators.

BUS-115 Business Law I (3 - 0 - 3)

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies. The uniform commercial code is considered wherever applicable. Prerequisite: None.

BUS-116 Business Law II (3 - 0 - 3)

Includes the study of laws pertaining to bailments; insurance; agency; employer and employee relations; business organization; real property, and workers benefits. Prerequisite: BUS 115.

BUS-117 Clerical Accounting I (5 - 2 - 6)

A concentrated study of the bookkeeping cycle with emphasis on the office technologist's aspects of collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, including practical application of the principles learned. The student covers the basic concepts of a simple service enterprise operating on a cash basis. Prerequisite: MAT 110, MAT 101 or MAT 108.

BUS-118 Clerical Accounting II (5 - 2 - 6)

A thorough treatment of the field of general accounting, including elaboration on the bookkeeping cycle, providing the necessary foundation for transfer of clerical accounting skills to the business world. The course includes, among other aspects, accounting for notes, adjusting and closing entries, and accounting for purchases and sales. Accounting for partnerships is emphasized. Additionally, clerical accounting skills are further developed through the study of a pegboard accounting system. Laboratory projects include correlated problems and practice sets. Prerequisite: BUS 117.

BUS-119 Clerical Accounting III (5 - 2 - 6)

A study of accounting for continued growth stemming from mastery of the recording techniques of general accounting and advancing to the complications of accruals and deferrals and, finally, to the "use understanding" of accounting records, reports, and financial statements. The corporate structure and its accounting complications are presented. Laboratory projects include correlated problems and practice sets. Prerequisite: BUS 118.

BUS-120 Accounting I (5 - 2 - 6)

Principles, techniques and tools of accounting, for understanding of the mechanics of accounting. Collecting, summarizing, analyzing, and reporting information about service and mercantile enterprises, to include practical application of the principles learned. Prerequisite: MAT 110 or MAT 101.

BUS-121 Accounting II (5 - 2 - 6)

Partnership and corporation accounting including a study of payrolls, federal and state taxes. Emphasis is placed on the recording, summarizing and interpreting data for management control rather than on bookkeeping skills. Accounting services are shown as they contribute to the recognition and solution of management problems. Prerequisite: BUS 120.

BUS-122 Accounting III (5 - 2 - 6)

The student is given a thorough knowledge of concepts used in the preparation and interpretation of financial statements. Each item of the income statement and balance sheet is carefully analyzed prior to making a selection as to how these items will be utilized. Prerequisite: BUS 121.

BUS-123 Finance I (5 - 0 - 5)

Stockmarket transactions and brokerage operations are used as a vehicle in presenting this course. Financing of business units includes individuals, partnerships, corporations, and trusts. Sources and uses of capital are covered. Prerequisite: BUS 101, BUS 120.

BUS-125 Bank Fundamentals (5 - 0 - 5)

The study and application of bank fundamentals. Emphasizes current trends in philosophy and position of management. Prerequisite: None.

BUS-205 Business Data Analysis (3 - 0 - 3)

A study of the interpretation of business data and the presentation of facts and figures in usable format.

BUS-206 Banking and Finance Credit (5 - 0 - 5)

The techniques of installment lending are presented. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending. Prerequisite: BUS 121.

BUS-207 Principles of Bank Operations (3 - 2 - 4)

The economic importance of banks; the receiving function, processing of cash items, bookkeeping operations, posting system, legal relationships with depositors, internal controls, trust services, growth of the American banking system, banking and public service. Prerequisite: BUS 220.

BUS-208 Financial Statements Analysis (3 - 2 - 4)

A study of analytical procedures utilized in evaluating solvency and profitability of businesses. Horizontal and vertical analysis of comparative statements are examined in the light of general economic conditions and conditions unique to the businesses being evaluated. Prerequisite: Department Permission.

BUS-209 Banking Services (3 - 2 - 4)

This course discusses the basis of banking services, both internal and external, and seeks simply to explain the why, what, and some of the how of public relations and marketing. It is intended as an overview for all bankers in terms of the essentials of bank services. Prerequisite: None.

BUS-214 Credit Procedures (3 - 0 - 3)

Principles and practices in the extension of credit; sources of various classes of credit; collection procedures; laws pertaining to credit extension and collection are included. Prerequisite: BUS 118.

BUS-223 Intermediate Accounting (5 - 0 - 5)

A general investigation of the accounting principles, concepts, and procedures underlying the preparation of financial statements followed by an in-depth analysis of financial statements and managerial implications as they are derived from accounting data. Prerequisite: BUS 122.

BUS-225 Cost Accounting I (5 - 0 - 5)

Nature and purpose of cost accounting, accounting for direct labor, materials, and factory overhead; for job order and process cost systems. Prerequisite: BUS 121.

BUS-226 Cost Accounting II (5 - 0 - 5)

A study of standard cost procedures; selling, administrative and distribution costs; budgeting and management use of cost data. Prerequisite: BUS 225

BUS-229 Taxes I (3 - 2 -4)

A study of federal and state personal income taxes, payroll taxes, sales and use taxes. Prerequisite: BUS 121 or HRM 105.

BUS-230 Taxes II (3 - 2 - 4)

A study of federal and state partnership and corporate income taxes. Prerequisite: BUS 229.

BUS-231 Government and Business (3 - 0 - 3)

A discussion of the extent to which government regulates business and the economy along with the implications and problems with which students, as citizens and voters, must be familiar. Covered are such regulations as Interstate Commerce Act, Sherman Act, Clayton Act, Pure Food and Drug Act, The Federal Fair Labor Standards Act, and the National Labor Relations Act. Prerequisite: ECO 104.

BUS-233 Personnel Management and Supervision (5 - 0 - 5)

This course presents the fundamental principles and successful practices in the organization and supervision of employees. A study of the critically important and practical concepts of modern day supervision is presented. Results of modern social-psychological research and case studies are employed to demonstrate and emphasize leadership and motivation in the job situation. Prerequisite: PSY 206.

BUS-234 Introduction to Management (3 - 2 - 4)

The student is given a thorough introduction to basic theories of management and techniques of applying these in a real situation. Prerequisite: None.

BUS-235 Business Organization & Management (3 - 2 - 4)

Principles of business organization, administration and management covering management theory including planning, staffing, controlling, coordinating, directing, financing, and budgeting. An over view of developing and engineering the product, methods analysis and control, principles and administration of industrial relations and financing controls as interrelated functions of management are stressed. Prerequisite: BUS 101.

BUS-236 Small Business Management (3 - 0 - 3)

A study of the principles of management as they relate to small businesses. The problems of small businesses will be stressed along with the possible solutions and how to alleviate the most common causes of business failures. Prerequisite: None.

BUS-237 Advertising (5 - 0 - 5)

A study of the role of advertising in the American economy, considering the importance in the business operations with resulting profits and business success. The instructions in the techniques of advertising and display. Prerequisite: BUS 239.

BUS-238 Consumer Behavior (3 - 2 - 4)

An examination of motivational and behavioral approaches to understanding consumer behavior in buying goods and services and the business-management problems relating to buyer decisions. Prerequisite: BUS 239.

BUS-239 Introduction to Marketing (5 - 0 - 5)

A general survey of the field of marketing, with a detailed study of the function, policies, and institutions involved in the marketing process. Prerequisite: None.

- BUS-240 Channels of Distribution** (5 - 0 - 5)
A study of the characteristics, economic aspects, regulations, services, and problems relating to systems of physical distribution. Prerequisite: BUS 239.
- BUS-247 Insurance** (5 - 0 - 5)
A presentation of the basic principles of risk insurance and their application. A survey of the various types of insurance is included. Prerequisite: BUS 116 or HRM 102.
- BUS-248 Marketing Research** (5 - 0 - 5)
A study of the role of Marketing Research in the American economy to include techniques for maximizing performance within marketing channels. Prerequisite: BUS 232.
- BUS-249 Inventory Control** (5 - 0 - 5)
A study of acquisition, control and distribution of inventories to include: ordering, control, and distribution techniques which may prove profitable in a marketing venture. Prerequisite: BUS 121.
- *BUS-266 Professional Sales Techniques** (3 - 0 - 3)
A study of the fundamentals of salesmanship in retail, wholesale, and specialty selling. Theory techniques in selling and practice demonstrations will be utilized. Emphasis will be placed on prospecting for sales, planning selling strategies, sales presentation and closing techniques. Prerequisite: BUS 239.
- BUS-269 Auditing** (3 - 2 - 4)
Principles of conducting audits both internal and external, with special emphasis on the control and safeguarding of assets and properly recording liabilities. Prerequisite: BUS 122, BUS 225.
- BUS-297 Real Estate Fundamentals** (5 - 0 - 5)
A study of the principles of Real Estate with emphasis on Real Estate Law, Finance, and the Realtor's Code of Ethics. Upon successful completion of this course, the student will understand the functions of a Real Estate Agent and will meet the educational requirements of the N. C. Real Estate Licensing Board. Prerequisite: None.
- BUS-1103 Small Business Operations** (3 - 0 - 0 - 3)
An introduction to the business world, problems of small business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations. Prerequisite: None.
- CAR-1101 Carpentry I** (5 - 0 - 15 - 10)
This course will be presented as an introduction to the first steps necessary from the finished foundation to the complete framing of a building. Methods of framing entire walls before erection will be presented. Motion saving methods and overall planning of time will be presented. Size of nails and identification of nails will be studied. Prerequisite: None.
- CAR-1102 Cabinetmaking I** (5 - 0 - 15 - 10)
This course is designed to introduce the student to hand tools used in a cabinet shop. After several projects with hand tools the student will be placed on each machine. Various types of wood will be used and identification of the various types of wood will be required. Prerequisite: CAR 1101.
- CAR-1103 Carpentry II** (0 - 0 - 12 - 4)
In this course the student will study all types of roof construction. Each student will be required to cut and assemble all types of rafters. Students will be required to put on all types of shingles and prepare a roof for "built up construction". The students will also be required to study the framing square in order to figure the length of rafters and cutting of all types of rafters and truss construction. Prerequisite: CAR 1102.

CAR-1104 Cabinetmaking II (0 - 0 - 9 - 3)

This course will go into the necessary framing for cabinet work. Students will be presented a study of built-in cabinets and pre-constructed cabinet work. Built-in book cases and special work will be presented. Prerequisite: CAR 1102.

CAR-1105 Supervised Work Experience (2 - 0 - 24 - 10)

This course will present the student with the finish work of carpentry. Types of baseboard, moulding, door facing, and framing and finishing stair cases will be presented. Each student will be subjected to a series of projects under close supervision that will require use of all finishing tools normally used by a carpenter. Clean work and self pride will have an emphasis in this course. Prerequisite: CAR 1103, CAR 1104.

CHM-100 Introduction to Chemistry (3 - 3 - 4)

For students who need additional work in General Chemistry. An introduction to General Chemistry which is essential for understanding organic and biological chemistry. Laboratory work emphasizes these basic concepts.

CHM-101 Fundamentals of Physiological Chemistry (3 - 2 - 4)

Emphasis is placed on physiological aspects of inorganic chemistry, organic chemistry, and biochemistry. Theoretic topics are dealt with briefly as an aid to understanding bodily processes. Prerequisite: Admission requirements.

CHM-102 Engineering Chemistry (3 - 2 - 4)

This course involves a study of physical and chemical properties of substances, weights and measurements, electrochemistry, and metals in their application of chemistry to industry. Prerequisite: MAT 101.

CHM-103 MLT Chemistry I (3 - 2 - 4)

This course involves basic chemical principles needed for understanding atomic structure, solution concentrations, chemical reactions, acids, bases, salts, weights and measurements.

CHM-104 MLT Chemistry II (3 - 2 - 4)

This is a study of application of physiological chemistry in relation to diagnosis in the laboratory. Prerequisite: CHM-103.

CHM-111 General Chemistry (3 - 4 - 5)

An introductory chemistry course involving chemical terminology, atomic structure, properties of some elements, and the function of the periodic table. Properties of compounds and mixtures are studied as are types of chemical reactions. Laboratory work consists of various inorganic reactions and preparations. Corequisite: MAT 100.

CHM-112 General Chemistry (3 - 4 - 5)

This course involves a study of the physical and chemical properties of substances, chemical changes, elements, compounds, gases, chemical combinations, weights and measurements. Prerequisite: CHM 111.

CHM-113 General Chemistry (3 - 4 - 5)

A study of the properties of elements not covered in CHM 112 and a study in greater depth of the combining properties of the elements including equivalent weights. Laboratory work includes chemical reactions and an investigation of properties of solutions. Prerequisite: CHM 112.

CHM-121 Qualitative Analysis (3 - 6 - 5)

Qualitative analysis is the branch of analytical chemistry which determines the presence or absence of elements, radicals, or ions in an unknown substance or mixture of substances. Students will be expected to analyze and study unknown substances to determine which ions are present. Analytical operations, the system of analysis, principles of qualitative analysis, analysis for anions, analysis for cations, analysis of alloys, salts, and commercial substances constitute major areas of study. Prerequisite: CHM 113.

CHM-222 Quantitative Chemical Analysis (3 - 6 - 5)

Emphasis is placed on developing laboratory techniques employed in the volumetric analysis of acids and bases. The students will become thoroughly familiar with the principles and procedures of neutralization titration. Classroom work will emphasize the stoichiometric calculations involved in interpreting the results of analysis. Laboratory work will consist of percentage analysis of selected substances. Prerequisite: CHM 121.

***CHM-223 Quantitative Chemical Analysis (2 - 9 - 5)**

The more complex types of quantitative analysis. Special emphasis on the theory of oxidation-reduction and gravimetric analysis. Instrumental analysis is introduced and use of modern analytical devices is stressed. The student will become familiar with the principles of redox reaction, ionization constants and pH of solutions. Stress is placed on the stoichiometric calculations of quantitative chemical analysis. Classroom work complements quantitative determinations in the laboratory. Prerequisite: CHM 222.

CHM-231 Organic Chemistry (3 - 6 - 5)

Nomenclature, structure, preparation, properties, and reactions of aliphatic organic compounds. Laboratory work will emphasize techniques. Prerequisite: CHM 223.

CHM-232 Organic Chemistry (3 - 6 - 5)

The nomenclature, structure preparation, properties, and reactions of aromatic organic compounds. Laboratory work emphasizes techniques and involves preparation and analysis of selected organic compounds. Prerequisite: CHM 231.

***CHM-241 Industrial Chemical Analysis (3 - 9 - 6)**

An industrial laboratory situation is simulated. Principles and techniques learned in previous quarters are utilized in solution of problems common to local industry. It will be the responsibility of the instructor to determine and submit in outline form a program of suitable scope and sequence of topics which he will work out from consultation with his local advisory committee, representing the industry. Prerequisites: CHM 223, CHM 231.

***CHM-242 Industrial Chemical Analysis (3 - 9 - 6)**

An industrial laboratory situation is maintained and the emphasis on instrumentation is expanded. Problems of industrial quality control. Plant visitations. Prerequisite: CHM 241.

CHM-244 Environmental Chemistry (3 - 2 - 4)

This study is intended to demonstrate the existence of a deep, underlying core of principles to which all aspects of environmental science can contribute and from which each can draw. Our aim is to shift the emphasis toward an integrated consideration of five fundamental categories of variables: energy, matter, space, time and diversity. Efficiency of energy transfer in systems will be of major importance. Finally, many practical problems in environmental science are reaching crisis dimensions for all of mankind, and the attention of our most talented youth should be directed to them. Prerequisite: CHM 113.

CIV-101 Surveying (2 - 6 - 4)

Theory and practice of plane surveying, including taping, differential and profile leveling, cross sections, earthwork computations, transit, stadia and transit-tape surveys. Corequisite: MAT 100.

CIV-102 Surveying (2 - 6 - 4)

Triangulation of ordinary precision; use of plane table; calculation of areas of land; land surveying; topographic surveys and mapping. Prerequisite: CIV 101. Corequisite: MAT 102.

CIV-103 Surveying (2 - 6 - 4)

Route surveys by ground and aerial methods; simple, compound, reverse, parabolic and spiral curves; geometric design of highways; highway surveys and plans, including mass diagrams. Prerequisite: CIV 102. Prerequisite: MAT 102.

CIV-114 Statics (5 - 0 - 5)

Forces, resultants, and types of force systems; moments, equilibrium of coplanar forces by analytical and graphic methods; stresses and reactions in simple structure; equilibrium of forces in space; static and kinetic friction; center of gravity, centroids, and moment of inertia. Corequisite: MAT 102.

CIV-202 Properties of Soils (2 - 2 - 3)

Study of soil types and their physical properties; mechanical analysis and tests of soils; techniques and subsurface investigation; earth pressure theories; bearing capacity; stability of slopes; hydrostatics of ground water; methods of compaction and consolidation. Prerequisite: CIV 220.

CIV-204 Surveying (2 - 6 - 4)

Aerial photogrammetry; applications of aerial surveys; building and road construction surveying; lines and grades for foundation layout, building construction, bridge layout, sewer and pipe line surveys, further study and application of advanced surveying techniques and instruments. Prerequisite: CIV 103.

CIV-216 Strength of Materials (5 - 0 - 5)

Fundamental stress and strain relationship; torsion; shear and bending moments; stresses and deflection in beams; introduction to statically indeterminate beams; columns; combined stresses. Prerequisite: CIV 114.

CIV-217 Construction Methods and Equipment (4 - 4 - 6)

Excavating methods and equipment used in building and highway construction; pile driving; construction techniques and equipment used in reinforced concrete buildings, bridges, lift-slabs, thin-shells and folded plates, erection methods and equipment of structural steel buildings and bridges; carpentry in house and heavy timber construction; construction safety. Field inspection trips.

CIV-218 Plain and Reinforced Concrete (4 - 4 - 6)

Study and testing of the composition and properties of concrete including cementing agents, aggregates, admixtures, and air-entertainment; design and proportioning of concrete mixes to obtain pre-determined strengths and properties; methods of placing and curing concrete; standard control tests of concrete. Analysis and design of reinforced concrete beams, floor systems and columns. Principles of prestressed precast concrete. Prerequisite: CIV 216.

CIV-219 Steel and Timber Construction (4 - 4 - 6)

Analysis and basic design of steel beams, tension members, columns, and riveted, high strength bolted, welded connection; study of plate girders, industrial building roofs and vents, continuous spans, lightweight steel construction; use of American Institute of Steel Construction Manual; introduction to rigid frames and plastic design in steel. Design of timber members and their connections. Field inspection trips. Prerequisite: CIV 216. Corequisite: CIV 225.

CIV-220 Construction Planning (4 - 0 - 4)

Analysis of construction plant layout requirements and contractor's organization for building and highway projects. Construction scheduling; project control and supervision; coordinating trades on building construction. Operations, charts and practical application of Critical Path Method (CPM) for construction planning, scheduling, and "time-cost" determination. Prerequisite: CIV 217.

CIV-221 Asphalt (2 - 2 - 3)

Study and testing of asphaltic materials, asphalt pavements and surface treatments. Testing will include the flash point test, viscosity, stability and flow, and ductility. Study of asphalt in application to bridges, hydraulics, roadways and airport runways. Prerequisite: CIV 218 & CIV 202.

CIV-225 Estimates, Codes and Specifications (4 - 4 - 6)

Interpretation of working drawings of timber, steel, and reinforced concrete structures and highways; bidding procedures from preliminary survey to final bid; study of the North Carolina Building Code and the Occupational Safety & Health Act (OSHA); practical costs and estimates problems; specifications. Prerequisite: CIV 220.

CIV-227 Construction of Highways (4 - 0 - 4)

Construction practices for road building, including soil properties, grading base, subbase, drainage, cuts and fills. Design of intersections, study of traffic flow and surveys, timespace diagrams. Organizational structure of the national highway system. Field trips. Prerequisite: CIV 202, CIV 103, CIV 218, CIV 221.

CIV-228 Engineering Relations and Ethics (2 - 0 - 2)

Study of the Engineers' Codes. Brief coverage of other fields of engineering technology. Ethical relations with employer, employees, clients, other technicians. Class discussions of situations involving engineering law and ethics. Prerequisite: Senior status.

CIV-229 Branches of Civil Engineering Technology (3 - 0 - 3)

Study of hydraulics, dam design, traffic engineering, hydrology, water systems design and layout, sewage treatment. Field trips. Prerequisite: Senior status.

CSP-100 Food Preparation I (3 - 6 - 5)

To instruct the student in the basic principles of fine cuisine as it is practiced in the finest hotels and restaurants in the country, with emphasis on sanitation, maintenance, layout, duties of the various stations in the kitchen, vegetable preparation, operation and safety hazards of the various pieces of equipment in the kitchen. Basic oriental cuisine will be emphasized to demonstrate the importance of "mise en place."

CSP-101 Food Preparation I (3 - 0 - 9 - 6)

This course is to orient the student of the various opportunities in the Food Service Industry. He will be instructed in the safety, care and use of the tools and equipment of the kitchen. Basic sanitation and personal hygiene will be taught. Weights and measures and instruction of the usage of the French Knife will be given in form of practical applications. Demonstration, lectures in the preparation, and the methods of boiling, sauteing, broiling and baking of vegetables, leading to the composition of vegetable plates will be given in the lab. At the end of the quarter, the student will be given a two hour practical examination to demonstrate his ability to perform and his gain in knowledge of this term's work. A two hour written examination will follow. Six production classes will be given where the student will be required to assist in all the phases of a cafeteria operation. This will include preparation, merchandising, costing, stewarding, and service. Prerequisite: None.

CSP-102 Food Preparation II (3 - 6 - 5)

This course offers training in the art of making basic stocks and soups as practiced in the better hotels and restaurants today. The preparation of salads, simple and composed, sandwich preparations, hot and cold appetizers will also be taught. Breakfast preparation will be included. Prerequisite: CSP 101, CSP 107.

CSP-103 Food Preparation II (3 - 0 - 12 - 7)

This course teaches the student the principles and preparation of egg cookery. Breakfast preparation will be included. Lectures and demonstration of hot and cold appetizers will be taught. Salads and their appropriate dressing will be produced. A variety of sandwiches such as Club, Open Face, Grilled with meat spreads and other fillings will be processed with an appropriate garnish. The student will further learn to prepare a chicken stock with poultry and/or from base leading to the preparation of specific Cream Soups—Bisques, Chowders. Regional and Cold soups will also be taught. In conjunction with these labs, students will be involved in a coffee shop service; preparation will include basically short order items made to order. Service will include learning the positions and duties of bus boy, waiter and Captain, learning how to write an order, order sequence and table setting. Testing in this quarter's work will be given in the form of a written examination and a practical demonstration of a breakfast menu, hor d'Oeuvres and sandwich and soups preparation. Prerequisite: CSP 101, CSP 107.

CSP-104 Food Preparation III (3 - 9 - 6)

This course will train the student to prepare fish meats and poultry dishes with their respective sauce. Fine cuisine is detailed with quantity food preparation and production stressed. Prerequisite: CSP 103.

CSP-105 Baking I**(2 - 0 - 3 - 3)**

To introduce the students to the art of baking as done in fine restaurants and hotels. Emphasis will be placed on equipment, sanitation, layout of pastry shops, detailed technical information of the basic raw ingredients used in bread and cake making. Instruction will also cover production procedures, service weights, and measures.

CSP-106 Food Preparation III**(3 - 0 - 12 - 7)**

This course is primarily designed to teach the students the different cuts of meats and their respective cooking methods. Fish, seafood, and poultry will also be stressed. The student will be required to prepare various stocks leading to a sauce or gravy appropriate to the product. Preparation of the basic white stock will be made in order to arrive at a finished consommé. Lectures followed by a demonstration will be given to the students prior to the lab where they will be required to produce the same. The production class in this quarter will involve the students in six international buffets. At the end of this quarter, he will demonstrate his progress by means of a written comprehensive examination of the first three quarters' work. The practical exam will include a complete menu of the first year's preparations, knowledge of the equipment of the kitchen, weight and measure skills and organization. Prerequisite: CSP 101, CSP 102.

CSP-107 Food Service Equipment Orientation**(1 - 2 - 0 - 2)**

This course is to interest the student in the operation of every major piece of mechanical equipment in the kitchen. He will be given the opportunity to learn the inner working of each piece of equipment, breaking it down for cleaning and subsequent restructure into its functional entity once again. Name, function, use of operating techniques, safety devices, and procedure of each piece of equipment will be stressed. Prerequisite: None.

CSP-108 Menu Planning**(1 - 2 - 0 - 2)**

This course will demonstrate a study of composing a menu. It will reflect the seasonal changes necessary in menu planning, the essential human food requirements, and the types of food that produce these requirements. French terms will also be used where applicable in composing the menu. The various types of menu, a-la carte versus table d'hôte will be prepared and discussed.

CSP-110 Supervised Work Experience*(2 - 0 - 40 - 6)**

This course is planned to give the student an opportunity to work in the industry and gain practical experience. The student must receive the approval of the department chairman prior to employment and must have completed all major courses through the third quarter with an average of "C" or better to be allowed to partake in this quarter's work. Upon the completion of the supervised work experience, it will be left to the discretion of the department chairman to allow re-admittance of the student to continue into the second year. Prerequisite: Successful completion of major courses through 3rd quarter.

CSP-112 Baking II**(2 - 0 - 3 - 3)**

This course will teach the student the skill and confidence in practical shop work. Conditions simulating actual working conditions as those found in hotels and restaurants. It will also give the students a fundamental knowledge of the usage of goods related to the baking industry. Practical assignments will be given for quantity production. Prerequisite: CSP 105.

CSP-113 Baking III**(2 - 0 - 3 - 3)**

This course will introduce more detailed assignments in practical shop work to achieve increased skills. Quantity production will also be prepared. Lectures and demonstrations of the finished product will be tested by the instructor. Prerequisite: CSP 112.

CSP-201 Food Preparation IV**(3 - 0 - 12 - 7)**

This course is to bring forward the student's knowledge gained in the first year and summer work experience. Advanced food preparation will be taught by learning new skills and methods and short cuts in various preparations. Table service will prevail where the student will develop an appreciation of table service and guest etiquette. A complete table d'hote menu will be prepared. In the cafeteria production class, he will progress by becoming an apprentice station chef, making menu suggestions, pre costing menus, issuing products, preparing the mise en place for the production class, critique of the meal, giving and taking orders from peers and be encouraged to expand team work. Final examination will consist of preparing and serving a complete table d'hote menu for 4 persons. Prerequisite: First year curriculum.

CSP-203 Dining Room I**(1 - 2 - 0 - 2)**

This course is to introduce the student to the basic dining room routines, menu terminology, and the various stations of the dining room. Emphasis and practical applications will be given to the student in a leading local dining room of this area as a co-op course where fine points of service will be stressed. Prerequisite: None.

CSP-207 Food Preparation V—Buffet**(3 - 0 - 12 - 7)**

This course will introduce the student to the art of food decoration and display. Menu themes will be shown and matched with appropriate preparations. New terminology, presentations, and preparations will be taught. The student will have the opportunity to develop his artistic ability in preparing various Piece Monte such as grosse piece, galantine, aspic molds, pastillage, chocolate works, tallow and butter carvings, ice carvings, etc. He will further learn to merchandise the dining room and be requested to drape the buffet tables for the buffet production classes — Garde-manger preparation will be stressed. Prerequisite: First year curriculum.

CSP-208 Convenience Foods**(2 - 0 - 0 - 2)**

This course is designed to show the students the potentials of convenience foods and how to use them. Programming convenience foods into the menu will be discussed. Demonstration will be emphasized to show both specialized equipments and techniques.

CSP-210 Food Preparation VI**(3 - 0 - 12 - 7)**

A la Carte and table d'hote services will be applied in the dining room. Each student will be responsible to one station of the kitchen to offer this service. In addition to these responsibilities, one student will be stationed as the "Chef of the Day." All phases of food preparation will be applied. Prerequisite: CSP 101, 103, 106, 108, 201.

CSP-214 Dining Room II**(1 - 2 - 0 - 2)**

This course is designed to have the students practice advance food preparation on the gueridon in conjunction with the service of wine. Geography, history, classification, and vintages of the wines will be taught and discussed. Tasting and selecting the appropriate wine for the gueridon preparation will be emphasized. Prerequisite: First year curriculum.

DEN-102 Introduction to Dental Assisting**(3 - 0 - 0 - 3)**

An introduction to the dental profession; its purpose, history, progress, and their education, training function and respective professional organizations, laws, and ethics governing the practice of dentistry; professional and social conduct of the dental assistant. Prerequisite: None.

DEN-103 Dental Materials I**(1 - 3 - 0 - 2)**

A study in the science of Dental Materials, with identification and characteristics of each, and evaluation of quality, principles and procedures related to the manipulation and storage of these various materials. Prerequisite: None.

DEN-104 Oral Anatomy and Histology**(2 - 2 - 0 - 3)**

Primarily a lecture course designed to develop a knowledge and understanding of the anatomy, nomenclature, development, arrangement, function and histology of the human dentition and all supporting structures. Laboratory experiences consist of studying and identifying models and extracted natural teeth.

- DEN-120 Clinical Science I** (3 - 3 - 3 - 6)
A study of clinical procedures and treatment; the care and use of dental instruments and equipment and manipulation of materials associated with clinical procedures. The chairside assisting laboratories and lectures are designed to train the student to anticipate the needs of the dentist when operating and to assist him in all procedures. Prerequisite: All courses in first quarter in Dental Assisting curriculum.
- DEN-122 Dental Materials II** (2 - 2 - 0 - 3)
A continuation of Dental Materials I, with emphasis on mastery of the manipulation of various materials, by fabrication of custom trays, temporary restorations, etc. Prerequisite: DEN 103.
- DEN-123 Oral Health Education** (1 - 2 - 0 - 2)
A study of the etiology, prevention, and control of dental caries and periodontal disease with emphasis on the dental assistant's role in oral health education. Prerequisite: All first quarter courses in the Dental Assisting curriculum.
- DEN-130 Clinical Science II** (2 - 0 - 8 - 6)
A continuation in chairside procedures and techniques from DEN 120 with emphasis placed on the role of the dental assistant in various dental specialties, such as endodontics, periodontics, orthodontics and oral surgery. Prerequisite: All first quarter courses in the Dental Assisting curriculum.
- DEN-131 Dental Office Management** (5 - 0 - 3 - 6)
Principle and procedures related to the management of the dental office, including maintenance of inventories, ordering supplies, financial records, clinical records, scheduling appointments, telephone technique and establishing favorable patient relations. Prerequisite: All first and second quarter courses in Dental Assisting curriculum.
- *DEN-132 Dental Office Practice I** (0 - 0 - 12 - 4)
An introduction to practice in the dental office or dental clinic. Emphasis is on the role of assisting the operator in a variety of limited dental procedures. Prerequisites: All first and second quarter courses in the Dental Assisting curriculum.
- DEN-133 Office Emergenices and First Aid** (1 - 0 - 0 - 1)
A study of dental office emergency routine, and administering first aid to combat an emergency situation.
- DEN-134 Pharmacology** (1 - 0 - 0 - 1)
Designed to give the student a fundamental knowledge of the actions and effects of common drugs on normal and diseased tissue; to explain the therapeutic effect of certain drugs, to classify the various drugs, and to enable the student to understand the prescribing of various drugs.
- *DEN-140 Dental Office Practice II** (0 - 0 - 20 - 7)
Practice in the dental office or dental clinic; assignments are rotated to encompass experience in office management, the dental laboratory and the operator. Emphasis on chairside assisting in a variety of clinical procedures. Prerequisite: All first, second and third quarter courses in the D. A. curriculum.
- DEN-141 Dental Assistant Seminar** (3 - 0 - 0 - 3)
A study of personal responsibilities as a practitioner including employee-employer relations, opportunities for continued development as a person and as a health worker and evaluation of clinical experience. Prerequisite: All first and second and third quarter courses in D. A. curriculum.
- DEN-142 Diet and Nutrition** (2 - 0 - 0 - 2)
To acquaint dental assisting students with basic principles of nutrition and to apply these principles of nutrition to clinical dentistry. Prerequisite: All first, second and third quarter courses in D. A. curriculum.
- DFT-101 Drafting** (1 - 5 - 3)
Introduction to field of drafting; lettering; use of instruments; geometric constructions; orthographic projection theory, sketching, reading, and instrument drawing; basic pictorial drawings; introduction of dimensions and notes; and reproduction process. Prerequisite: None.

- DFT-102 Drafting** (1 - 5 - 3)
 Auxiliary views; sections and conventions; dimensioning and shop notes for detail drawings; introduction of working drawings; screw threads, fasteners, keys, and springs; and simple assembly drawings. Prerequisite: DFT 101.
- *DFT-103 Drafting** (1 - 5 - 3)
 The study of precision dimensioning; preparation of set of working drawings; assembly drawings, detail drawings, and part lists; surface quality (finish); and weldments and symbols. Prerequisite: DFT 102.
- DFT-104 Civil Drafting** (1 - 5 - 3)
 Plats as required by law drawn in pencil and ink. Highway construction layouts and profiles, steel and wood structural drawings, topographical mapping and symbols. Prerequisite: DFT 101.
- DFT-106 Graphic Analysis** (1 - 5 - 3)
 Methods of rectangular, semi-log and full-log charting, polar, trilinear and bar charts, flow and pictorial diagrams, nomography, strata and conversion charts, graphical calculus. Prerequisite: MAT 102. Corequisite: MAT 103.
- DFT-109 Electronic Drafting** (1 - 5 - 3)
 Use of instruments; lettering; reading, sketching and drawing orthographic views; electrical and electronic symbols; block diagrams; schematic diagrams and wiring diagrams. Prerequisite: None.
- *DFT-201 Design Drafting** (2 - 6 - 4)
 Structural steel layout and detailing; application of structural shapes; fluid distribution; selection of pipe, tubing and fittings, single line piping diagrams, and two line piping drawings; electronic and electrical symbols; and single line, schematic, and wiring diagrams. Emphasis will be placed on use of catalogs and manuals related to the above areas of study. Prerequisite: DFT 103.
- DFT-204 Descriptive Geometry** (2 - 6 - 4)
 Points, edges, lines, planes, curved lines, curved surfaces, irregular surfaces, intersections, developments, auxiliary projections, revolutions, vectors, and practical design applications. Prerequisite: DFT 102.
- *DFT-205 Design Drafting** (2 - 6 - 4)
 Charts and graphs, plats as required by law; topographical mapping and symbols; and design layouts and working drawings of gears, gear train drives, belt and pulley drives, and chain and sprocket drives. Prerequisite: DFT 103.
- *DFT-206 Design Drafting** (2 - 6 - 4)
 Assignment of mechanical design projects requiring use of research; application of basic engineering principles; calculations; and use of various manuals, catalogs, and periodicals. Preliminary design sketches, layout drawings, detail drawings, sub-assembly drawings, assembly drawings, specifications, patent drawings and simplified drawing practices will be required. Prerequisite: DFT 205 and DFT 211.
- *DFT-211 Mechanisms and Kinematics Design** (2 - 6 - 4)
 Introduction and definitions of kinematic terms; vectors; motion concepts; kinematic drawing; kinematic displacement; centros, velocities and accelerations of mechanisms; motion curves; displacement diagrams and cam layout; and practical problems, gear trains, cams, belts and pulleys, and chains and sprockets. Prerequisites: DFT 204, DFT 205, and PHY 102.
- *DFT-212 Jig and Fixture Design** (2 - 6 - 4)
 Emphasis is placed on tool planning, design and drafting; commercial standards, principles and practices; selection of materials and standard parts; use of catalogs and manuals; and cost estimates. Projects are assigned requiring the design of jigs, fixtures, and gauges. Prerequisite: DFT 205.
- *DFT-242 Architectural Drafting** (2 - 6 - 4)
 Complete set of working drawings, plot plan, floor plan, elevations, wall sections, details, electrical plan, plumbing, foundation, dimensioning practice, symbols and materials schedule. Prerequisite: DFT 103.

DFT-1126 Pattern Development and Layout (0 - 3 - 0 - 1)

A study of methods used in layout of sheet steel. Special emphasis is placed on developing pipe and angle layouts by the use of patterns and templates. Prerequisite: BPR 1104.

***DFT-1127 Construction Trades Drafting I (1 - 5 - 0 - 3)**

Use of instruments; lettering; preliminary sketches, foundation plan, floor plan, and exterior elevations for a residential or light commercial building; dimensioning practices; symbols; and conventions. Prerequisite: BPR 1109.

***DFT-1128 Construction Trades Drafting II (0 - 3 - 0 - 1)**

Structural plans and details including use of steel, concrete and timber; typical wall sections; and miscellaneous sections and details. Prerequisite: DFT 1127.

DFT-1207 General Machine Drafting (1 - 5 - 0 - 3)

Use of instruments; lettering; orthographic drawing, sections and primary auxiliary views; dimensioning; displacement, timing and motion diagrams; and cam layout. Prerequisite: BPR 1106.

***DFT-1209 Tool Design and Planning (2 - 3 - 0 - 3)**

This course will enable the student to plan the process of production and isolate the areas that must be tooled for production. Cost of tools, jig and fixtures, and gaging will be considered. Students will review available items from vendors and utilize standard bushing charts and other references. Typical tool design procedures will be employed and prints must reflect standard procedures. Prerequisite: DFT 1207.

DHY-101 Dental Anatomy (2 - 4 - 4)

A study of the morphology, structure and function of the deciduous and permanent teeth and their surrounding tissues, with laboratory procedures including the identification of natural teeth and the reproduction of tooth forms by drawing and carving representative teeth.

DHY-102 Head and Neck Anatomy (3 - 0 - 3)

This course contains a detailed study of the musculature, blood and nerve supply of the head and neck. A comprehensive study of the bones, landmarks, sinuses and foramina of the skull is also included. Attention is directed to the relationship of these landmarks to dental hygiene practice. Prerequisite: None.

DHY-103 Dental Roentgenology (2 - 4 - 4)

A study of the science and art of roentgenology that is of interest to the dental profession. It involves the generation and application of roentgen rays for the purpose of recording shadow images; correct processing procedures; and the mounting of roentgenograms for diagnostic purposes. It also includes the study of anatomical landmarks and radiographic interpretation of the most frequently observed lesions in the oral cavity. Prerequisite: minimum grade of "C" in DHY 101 and DHY 102.

DHY-110 Preclinical Dental Hygiene (3 - 2 - 4)

This course is designed to introduce the student to the scope, role, and responsibilities of dental hygiene with emphasis on the philosophy of preventive dentistry and participation of the dental hygienist as a member of the total dental health team. This course is also designed to introduce the student to the necessary topics to prepare her for the clinical experiences in Dental Hygiene I, II, III, IV, V and VI.

A comprehensive study of soft deposits, stains, and dental calculus, followed by a thorough study of plaque control methods (Toothbrushing, dental floss, and auxiliary plaque control methods) will be included. Lectures will include emphasis on sterilization and other preventive procedures associated with preparatory procedures for the oral prophylaxis. Development of related dental hygiene procedures; medical and dental history taking and introductory medical and dental emergency procedures will also be stressed in lectures. Prerequisite: None.

DHY-111 Dental Hygiene I**(3 - 6 - 5)**

This course will emphasize a continuing internalization of the theories and procedures studied in DHY 110. The student will be introduced to the principles and techniques of the oral prophylaxis. Laboratory sessions will be utilized to introduce the student to correct instrumentation techniques, polishing techniques, operator maintenance, and instrument sharpening.

Lectures will include total dental hygiene patient care; including the oral inspection, a review of patient education procedures, fluoride applications and postoperative and recall procedures. Prerequisite: minimum grade of "C" in DHY 110.

DHY-112 Dental Hygiene II**(2 - 9 - 5)**

This course will emphasize a continuing internalization and increased skill performance of procedures learned in DHY 110 and DHY 111 demonstrated through increased clinical experience. Lectures will include basic dental assisting procedures as well as a continuation of total dental hygiene patient care; including the care of dental appliances and hypersensitive teeth, and the purposes and principles of dental charting. Lectures will also be devoted to the dental specialties, supplemented by guest lectures from the community. Prerequisite: minimum grade of "C" in DHY 111.

DHY-114 General and Oral Pathology**(3 - 0 - 3)**

This course contains an introduction to general pathology with consideration of the more common diseases affecting the human body. (Inflammation, necrosis, retrograde changes, and pathological processes in diseases caused by bacteria, viruses, and other organisms.) Emphasis will be placed on the diseases affecting the teeth and their supporting structures, including consideration of oral manifestations of selected systemic disturbances. Students will also be involved with the visual recognition between normal and abnormal conditions of the mouth and the supporting structures.

DHY-121 Embryology and Oral Histology**(3 - 0 - 3)**

This course contains a study of the embryonic and histological development of the face, oral cavity and the teeth. Emphasis is placed on the structure and functions of the primary tissues, of the morphology of the body systems, and of the structures and composition of the tissues of the teeth. Emphasis is given throughout the course to the clinical considerations as related to dental hygiene practice. Prerequisite: BIO 101.

DHY-201 Chairside Assisting**(2 - 2 - 3)**

This course will provide basic skills in assisting the dentist with simple clinical procedures; identification of instruments; and the care and use of dental instruments and equipment.

DHY-203 Community Dental Health I**(3 - 0 - 3)**

This course will include a study of the historical and philosophical background of public health with emphasis on the function of dental public health. Special attention will be devoted to the preparation, collection, and recording of data, and use of the dental indexes for utilization in community projects. Prerequisite: none.

DHY-205 Periodontology**(2 - 0 - 2)**

This course will include a detailed study of the etiology and classification of periodontal disease. Emphasis will be placed on the principles of periodontology with special attention given to the recognition of early symptoms of periodontal disease by the dental hygienist. Prerequisite: minimum grade of "C" in DHY 121.

DHY-206 Dental Materials**(3 - 4 - 0 - 5)**

The study of the basic principles of dental materials used by the dentist and his auxiliaries in fabricating dental appliances and restoring teeth. Primary emphasis will be placed on properties and correct manipulation of materials including the following: Gypsum products, impression materials, dental cements, temporary restorative materials, composites and resins, periodontal dressings, amalgam, gold alloys, waxes, polishing and abrasive materials. Additional subjects to be covered include: porcelain products, casting procedures, cobalt-chromium alloys, and solders.

DHY-212 Dental Hygiene III (2 - 9 - 5)

Continued practice in dental hygiene procedures with increasing development of skills in rendering oral prophylactic procedures. Lectures are devoted to various specialties in dentistry, supplemented by guest lecturers. The relationship of nutrition to dental health is included with emphasis on the techniques of individual diet assessment and counseling and the application of nutritional factors in dental health education. Prerequisite: DHY 112.

DHY-213 Dental Hygiene IV (2 - 15 - 7)

Continued clinical experience to develop skills in the dental prophylaxis, plaque control and nutritional counseling. The student averages twelve clinic periods per week in the dental clinic. Rotation in adjunct clinics include the Buncombe County Health Department, Veterans Administration Hospital and Dental Specialty offices. Lecture includes the advance skills of root planing and gingival curettage; a review study of deposits and stains, sterilization, and preventive procedures related to the oral prophylaxis. Each student will participate in the preparation of a table clinic.

DHY-214 Dental Hygiene V (2 - 15 - 7)

Clinical experience is a continuation of DHY 213. The development of self-direction on evaluating clinical performance and setting objectives for improvements is encouraged. Advanced roentgenology, oral pathology and nutrition are augmented by guest lectures. Prerequisite: DHY 213.

DHY-215 Dental Hygiene VI (2 - 15 - 7)

Clinical continuation of DHY 213 and 214 with emphasis on total patient management in the private practice. Discussion by the students, instructors, registered dental hygienists and dentists related to employment opportunities; continued education will be encouraged.

DHY-221 Pharmacology (3 - 0 - 3)

This course is designed to accomplish a basic study of the physical and chemical properties, the dosages, and the therapeutic effects of the drugs used in dentistry and of the other drugs which are clinically significant in the management of the dental patient. Prerequisite: none.

DHY-222 Community Dental Health II (1 - 3 - 2)

This course will prepare the dental hygiene student to accept her responsibility as a member of the dental professional to the community. In laboratory sessions, the student will plan and implement a program to achieve a change of behavior, attitude, and knowledge of oral health for a selected population group. The intent is to involve the student in the dental health needs of the community. Prerequisite: DHY 203.

DHY-225 Office Management/Ethics and Jurisprudence (4 - 0 - 4)

This course is designed to give the dental hygiene student an insight into the day to day activities of a well organized dental practice, so that she will be able to assume some of the business administrative responsibilities for short periods of time if necessary. In addition, this course is designed to give the dental hygiene student a thorough understanding of her profession and its relationship with the practice of dentistry. Lectures will also deal with the laws and regulations relating to dentistry and dental hygiene.

ECO-102 Economics I (3 - 0 - 3)

The fundamental principles of economics including the institutions and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, and consumption both in relation to the individual enterprise and to society at large. Prerequisite: None.

ECO-104 Economics II (3 - 0 - 3)

Greater depth in principles of economics including a penetration into the composition and pricing of national output, distribution of income, international trade and finance, and current economic problems. Prerequisite: ECO 102.

- ECO-105 Introduction to Economics** (5 - 0 - 5)
 The fundamental principles of economics including the institution and practices by which people gain a livelihood. Included is a study of the laws of supply and demand and the principles bearing upon production, exchange, distribution, consumption, composition and pricing of national output, distribution of income, international trade and finance, and current economic problems. Prerequisite: None.
- ECO-107 Consumer Economics** (3 - 0 - 3)
 Designed to help the student use his resources of time, energy, and money to get the most out of life. It gives the student an opportunity to build useful skills in buying, managing his finances, increasing his resources, and to understand better the economy in which he lives. Prerequisite: None.
- ECO-108 Consumer Economics** (5 - 0 - 5)
 An in-depth study of consumer economics integrating the basics of consumer economics with the functional application of economic principles. Prerequisite: None.
- EDP-104 Introduction to Business Data Processing** (2 - 2 - 3)
 Fundamental concepts and operational principles of business data processing systems, along with an introduction to computer programming, are presented. The emphasis is on concepts and terminology used in business type applications. Prerequisite: None.
- EDP-105 Introduction to Scientific Data Processing** (2 - 2 - 3)
 This course is designed to meet the basic data processing needs for students within the Division of Engineering Technology. The emphasis is on data representation, numbering systems, and solving scientific and engineering type problems in either Fortran or Basic. Prerequisite: None.
- EDP-106 Applied Business Data Processing** (1 - 4 - 3)
 This course offers the business major an opportunity to gain a working knowledge of procedures used in mechanized business applications. The procedures cover date entry and editing, master file maintenance, and generation of distribution reports, adjusting entries, and financial statements. Prerequisite: EDP 104.
- EDP-107 Introduction to S/360-370(DOS)** (3 - 2 - 4)
 This course introduces operating system and multi-programming concepts. Memory configuration, modes of representing data, addressing of basic instruction formats on S/360-370 are included. Prerequisite: EDP-102.
- EDP-108 Business Programming (BAL)** (3 - 2 - 4)
 The Basic Assembler Language (BAL) programming course includes details for writing programs to function under the Disk Operating System (DOS) of System/360. Specific information pertaining to DOS is presented. Corequisite: EDP-107.
- EDP-109 Systems and Procedures (BAL)** (2 - 3 - 3)
 Programming projects are assigned to students to be written and run on the System/360 in Basic Assembler Language. The projects include typical procedures and applications found in business and industry. Prerequisite: EDP-108.
- EDP-118 Data Base Management Concepts** (3 - 2 - 4)
 This course introduces data base concepts and compares this type of file organization with the more conventional types. The students will develop a data base using one of the up-to-date data base systems. Prerequisite: EDP 109.
- EDP-160 EDP Operations** (2 - 3 - 3)
 This course will introduce a production type environment for computer operations. The student will also receive practical experience in the use of Utility programs, JCL, and spooling concepts.
- EDP-163 Special Projects** (2 - 3 - 3)
 This course is designed to provide the students experience in areas of tape and disk operations, librarian, and D.P. control functions. Corequisite: EDP-162.

- EDP-171 Basic Key punching (2 - 3 - 3)**
This course introduces the student to program development for the key devices and the touch system for the key board. Prerequisite: EDP 104.
- EDP-172 Key punching Skill Development (2 - 3 - 3)**
This is an advanced course in key punching, designed primarily to develop a proficiency in punching. Prerequisite: EDP 171.
- EDP-173 Cooperative or Supervised Experience (0 - 15 - 5)**
The student will be placed on the job or in a supervised classroom setting in order to encounter a variety of work experiences. These experiences should allow the student to relate more meaningfully to the world of work and to a specific place in the world of work. Prerequisite: successful completion of all prior course work.
- EDP-174 Seminar on Cooperative Education (2 - 0 - 2)**
During the seminar sessions, the working student will discuss the problems encountered in the position and the means to overcome these problems.
- EDP-205 Scientific Programming (FORTRAN IV) (3 - 2 - 4)**
Formula Translation (FORTRAN) programming stresses the components of the language including fundamental concepts, subscribed variables, subprograms, logical operations, character manipulation, advanced format, and input-output features for disk and tape. Prerequisite: EDP-107 Corequisite: MAT-214.
- EDP-206 Systems and Procedures (FORTRAN IV) (2 - 3 - 3)**
Emphasis is on the solution of practical problems of a mathematical nature from business and industry. Corequisite: EDP-205.
- EDP-215 Business Programming (COBOL) (3 - 2 - 4)**
The Common Business Oriented Language (COBOL) is presented in detail. A variety of business and commercial applications are programmed and tested. Prerequisite: EDP-107.
- EDP-216 Systems and Procedures (COBOL) (2 - 3 - 3)**
This course covers studies of typical COBOL systems and procedures now being used in commercial and industrial computer installations. The student studies the organization of data for computer application. Major applications are followed with projects performed by the student. Prerequisite: EDP-215.
- EDP-217 Business Programming (Advanced COBOL) (2 - 3 - 3)**
This course is an extension of basic COBOL. It allows time needed for understanding and writing more sophisticated programs under OS. Corequisite: EDP-216.
- EDP-218 Business Programming (RPG) (3 - 2 - 4)**
Report Program Generator (RPG) coding includes preparation of spacing chart, file description, file extension, input, calculation, and out-put specifications. Business application programs are written. Prerequisite: EDP-107.
- EDP-219 Systems and Procedures (RPG) (2 - 3 - 3)**
This course gives the student additional explanation on systems and procedures as they relate to the Report Program Generator coding system. Corequisite: EDP-218.
- EDP-220 Systems Analysis and Design (2 - 3 - 3)**
In addition to learning theoretical concepts, students study an existing data processing system and make recommendations for improvement, or design a new system. The works is in the nature of a programmer-analyst. The task involves the flow of work from its point of origin to completion by the computer program including all forms design, full documentation, and reports. Prerequisite: EDP-217.
- *EDP-221 Advanced Projects (COBOL) (2 - 3 - 3)**
This course is designed to provide the student with experience in applying the various computer languages and concepts in advanced problem solving, primarily COBOL. Included will be the use of disk, library programs, and job control language as needed for the projects. Prerequisite: EDP 206, EDP 217.

ELC-201 Electrical Machinery (3 - 0 - 3)

A course in basic understanding and application of electricity to modern industrial machinery. Included is a study of D.C. and A.C. motors, motor controls and protecting devices, transformers, and their industrial applications. Prerequisite: PHY 103.

ELC-205 Applied Electricity (2 - 4 - 4)

Electrical code, interpretation of nameplate data, motor characteristics and selection, motor controls and protection devices, single phase and three-phase current applications, wire size calculations and Y and Delta connections. Prerequisite: PHY 103.

ELC-1117 Basic Electricity (3 - 2 - 0 - 4)

A study of the electrical structure of matter and electron theory, the relationship between voltage, current, and resistance in series, parallel, and series-parallel circuits. An analysis of direct current circuits by Ohm's Law and Kirchoff's Law. A study of the sources of direct current voltage potentials. Fundamental concepts of alternating current flow, reactance, impedance, phase angle, power, and resonance. Analysis of alternating current circuits.

ELC-1118 Applied Electricity (3 - 2 - 0 - 4)

Provides fundamental concepts in single and polyphase, alternating current circuits, voltages, currents, power measurements, transformers, and motors. Instruction in the use of electrical test instruments in circuit analysis. The basic concepts of AC and DC machines and simple system controls. An introduction to the type of control used in small appliances such as: thermostats, times, or sequencing switches. Applicable sections of the current National Electrical Code will also be presented. Prerequisite: ELC 1117.

ELC-1119 Electricity for Welders (3 - 2 - 0 - 4)

A study of the relationship between voltage, current, and resistance in series and parallel circuits. Analysis of A.C. and D.C. circuits by Ohms and Watts laws. A study of D.C. current motors and generators. A study of transformers, rheostats and controls, basic study of grounding, bonding and calculation of conductors.

ELC-1201 Electricity-Industrial (2 - 3 - 0 - 3)

A study of the relationship between voltage, current and resistance in series, parallel and combination circuits. Fundamental concepts of alternating current flow; a study of reactance, impedance, phase angle, power and resonance and alternating current circuit analysis.

ELN-101 Fundamentals of D-C (4 - 4 - 6)

Principles of direct current electricity including: basic electron physics; electrical units of measure; Ohm's law, series, parallel, and series-parallel resistive networks; Kirchoff's laws; basic measuring instruments; electrostatics; capacitors; R-C time constants; magnetics; inductance; L-R time constants. Laboratory experiments provide proof of the important concepts developed. Prerequisite: None.

ELN-102 Fundamentals of A-C (4 - 4 - 6)

Principles of alternating current electricity including: sine wave analysis; resistive, capacitive, and inductive networks; phasor relations in complex circuits; non-resonant and resonant series and parallel L-C-R circuits; inductive coupling; air and iron core transformer analysis. Important theoretical concepts are substantiated by laboratory experiments. Prerequisite: ELN 101.

ELN-103 Network Analysis (4 - 4 - 6)

Application of the Network Theorems to problem solution. Kirchoff's Voltage and Current Laws, the Superposition Theorem, Thevenin's Theorem, Norton's Theorem and Miller's Theorem are applied to different circuit configurations in order to develop skills necessary to analyze circuit performance mathematically. Emphasis is concentrated on facilitating circuit solution by replacing complex networks with simple equivalent circuits. Prerequisite: ELN 102.

ELN-105 Vacuum Tubes, Theory and Application (4 - 4 - 6)

In introductory study of the vacuum tube as an active circuit element with both graphical and linear analysis of the device and circuits. A basic examination of the linear amplifier is combined with some applications in feedback and oscillators. Prerequisite: ELN 102. Corequisite: ELN 103.

ELN-106 Introduction to Solid State Devices (4 - 4 - 6)

A brief introduction to semiconductor theory, followed by a D-C analysis of the PN junction, semiconductor diodes (conventional and Zener) and bipolar transistors. Graphical analysis is employed for introductory purposes but course emphasis is directed toward circuit solution utilizing hybrid parameters. Transistor biasing is considered in conjunction with device limits and thermal effects. Prerequisite: ELN: 103.

ELN-207 Transistor Amplifier Analysis (4 - 4 - 6)

Further development of the semiconductor studies of ELN 106. Alternating current circuit concepts are introduced. The transistor is studied as an amplifier in the common emitter, common collector and common base configurations. The push-pull amplifier is introduced. Field effect transistors are included as a separate study. Prerequisite: ELN 106.

ELN-209 Circuit Analysis (4 - 4 - 6)

A study of special purpose amplifiers and related components. Cascade amplifiers are studied from their non-ideal aspects. Operational amplifiers are studied as analog devices capable of performing mathematical operations. Input and output level and impedance matching of amplifiers is considered as well as additional related topics such as differential amplifiers and a further study of oscillators. Prerequisite: ELN: 207.

ELN-211 Logic Circuits (4 - 4 - 6)

An introduction to solid state logic circuits. Topics of study are—OR gates, AND gates, inverters, inhibit operations. EXCLUSIVE OR gates, AND gates, NOR gates, binary addition and subtraction with logic circuit elements, registers encoding, decoding, and finally combining the circuits studied “with an introduction to micro-processors”. Prerequisite: ELN 106. MAT 121.

ELN-213 Waveshaping and Pulse Circuits (4 - 4 - 6)

A course continuing studies initiated in ELN 211 and introducing additional topics. Logic circuits study is extended to include bistable multi-vibrator, monostable, multi-vibrator, astable multi-vibrator and Schmitt trigger. Differentiators, integrators, ramp generators and related topics are included as well as additional studies of device limitations as applied to switching circuits. Prerequisite: ELN: 211.

ELN-217 Introduction to Special Devices (4 - 4 - 6)

A study encompassing semiconductor devices with negative resistance characteristics or other special properties. Devices studied include unijunction transistors, four layer diodes (SCR, SCS, TRIAC, etc.), tunnel diodes, Shockley diodes and others. Prerequisite: ELN 209.

ELN-219 Industrial Instrumentation (4 - 4 - 6)

An investigation into sensing devices, information processing and discrimination, recorders, and output devices. These elements are considered an analog and digital applications to industrial control and automation systems. Prerequisite: ELN 209, ELN 211.

ELN-221 Electronic Circuit Design (4 - 4 - 6)

A research project for the advanced student to provide a realistic and creative application of his fundamental electronic knowledge to a demonstratable system of his own design. A further objective in cooperation with the English department is to provide further experience in preparing meaningful technical reports. Prerequisite: ELN 209, ELN 211.

ENG-100 Reading Comprehension (1 - 2 - 2)

A concentrated effort designed to assist the student in increasing his power to comprehend and interpret written material. Emphasis is placed on reading to learn, and instruction is concerned fundamentally with the continued refinement and development of the abilities of each individual. Group training, practice session, discussions of difficulties, techniques and ideas are used to attain the maximum reading skills of every reader. Prerequisite: None.

ENG-101 Fundamentals of English**(3 - 0 - 3)**

Designed to aid the student in achieving correct and effective self-expression. The emphasis is on improvement of written expression through the use of the functional approach. The course is intended to prepare the student for appropriate written and spoken communication in day-to-day situations in his work and in his social life. Prerequisite: None.

ENG-102 Composition**(3 - 0 - 3)**

Designed to aid the student in further improvement of self-expression in business and technical composition. Emphasis is on the sentence, paragraph, and whole composition. Prerequisite: ENG 101 or ENG 111.

ENG-103 Report Writing*(3 - 0 - 3)**

The fundamentals of English are utilized as a background for the organization and techniques of modern report writing. Exercises in developing typical reports, using writing techniques and graphic devices, are completed by the students. Practical application in the preparation of a full-length report is required of each student. This report is based on material in his chosen curriculum. Prerequisite: ENG 102.

ENG-111 Grammar**(5 - 0 - 5)**

A basic course covering the fundamentals of English grammar. Emphasis is on grammar and sentence structure. Intended to provide the students with the basic tools for their roles in business. This course is primarily designed for students in the Office Technology option. Prerequisite: None.

ENG-204 Oral Communication*(3 - 0 - 3)**

A study of basic concepts and principles of oral communications. Emphasis is placed on the speaker's attitude, diction, voice, and the application of particular techniques to correct speaking habits and to produce effective oral presentation. Prerequisite: None.

ENG-205 Written Communications.*(5 - 0 - 5)**

A communications course designed for secretarial students who must learn to initiate written documents for the employer. Primary emphasis is placed upon the development of skills in the techniques of writing business letters, such as credit and collections, complaints, orders, acknowledgements, remittances, inquiries, and answers to inquiries. The student will also learn to write business reports based upon the accumulation of primary data and to summarize business conferences. Prerequisite: ENG 102.

ENG-206 Business Communication**(3 - 0 - 3)**

Develops skill in techniques in writing business communications. Emphasis is placed on writing action—sales letters and prospectuses, business reports, summaries of business conferences, letters involving credit, collections, adjustments, complaints, order acknowledgements, remittances, and inquiries. Prerequisite: ENG 102.

ENG-210 Independent Readings**(0 - 3 - 1)**

This course is designed to promote an interest in reading, especially reading outside the student's major area, to give the students an opportunity for discussion of current and classic works in the following 3 areas: North Carolina Fiction (since 1850), Southern Literature (modern) and Appalachian Literature. Prerequisite: None.

ENG-1101 Reading Improvement**(2 - 0 - 0 - 2)**

Designed to improve the student's reading skills: comprehension and speed. Work attack skills, vocabulary development, phonics study emphasized. Note-taking, outlining, PR 4 method of study and dictionary study included. Individualized instruction, in a laboratory setting.

ENG-1102 Communication Skills **(3 - 0 - 0 - 3)**

Designed to promote effective communication through correct language usage in speaking and writing. Prerequisite: ENG 1101.

ENV-100 Man and His Environment **(3 - 0 - 3)**

A study of the "environmental crisis" including topics such as depletion of our nation's energy reserves; efforts to control pollution, and methods of population control. Solid waste disposal and recycling, sewage treatment, and industrial roles in the causes and controls of air, water, and thermal pollution are covered to the extent that the student will have a working knowledge of factors essential to man's environment. Prerequisite: None.

ENV-110 Man and Ecology **(3 - 3 - 4)**

A study of how man has influenced ecology and what he must do in order to insure his survival. Depletion of natural resources, rampant pollution, uncontrolled population are main topics. The student is involved in local ecological issues, in visits to local industry, and in making an "environmental scrapbook" to be understand how we are part of the problem and solution. Prerequisite: None.

HED-100 Health Education I **(1 - 0 - 1)**

A study of fundamental principles of health including personal hygiene, presentations on physical fitness, alcohol, drugs, tobacco, health safeguards, etc.

HED-101 Health Education II **(1 - 0 - 1)**

A continuation of HED 100.

HED-102 Health Education III **(1 - 0 - 1)**

A continuation of HED 101.

HED-103 First Aid I **(2 - 0 - 2)**

Instruction in the handling and necessary knowledge for emergency care of sick or injured persons until a doctor arrives. An aim of the course will be to create interest in the prevention of accidents through the elimination of causes.

HED-104 First Aid II **(2 - 0 - 2)**

Advanced Study beyond HED 103.

HED-105 Public Health and Sanitation **(2 - 0 - 2)**

Basic information about public health and sanitation. Principles and practices as they relate to public health. Information concerning signs and symptoms of communicable diseases, personal cleanliness, sanitation of food, water, etc.

HEV-1101 Diesel Engine Theory and Practice **(3 - 0 - 12 - 7)**

This course is designed as an introduction to the most common types of diesel engines. Each student will be subjected to the principles and theory of the diesel engine and required to work with several different types of engines. As the engines are rebuilt the proper use of hand tools and instruments will be taught. Standard procedures will be used in all engine work. Methods of checking the various parts of the engines will be employed.

HEV-1102 Diesel—Electrical, Fuel, Lubricating and Cooling Systems **(2 - 0 - 15 - 7)**

This course continues from the engine course and will subject the student to the electrical system, fuel system, and lubricating systems. Each area will be treated as an individual unit. Each student will compare the various systems of heavy equipment. Preventive maintenance will be stressed in all areas. Types of fuel and the importance of pure and clean fuel will be taught. Tools, instruments, and machines related to these units will be presented. Prerequisite: HEV-1101.

**HEV-1103 Diesel—Hydraulic Systems, Steering, Suspension
Braking, Power Train, Injector Testing and
Servicing**

(3 - 0 - 15 - 8)

This course continues from the engine course and will advance the student into the actual hydraulic systems, steering, suspension, braking, cooling systems, and injector servicing and testing. Each subject area will be treated as an individual unit taught separately. Each student will be required to study the difference in systems on various pieces of equipment. Tools, machines, and instruments used in the various aspects of this work will be presented. Prerequisite: HEV 1102.

HEV-1105 Diesel—Service and Repairs

(3 - 0 - 12 - 7)

This course is constructed to require students to utilize all tools, instruments, and machines for analysis of all aspects of service and repair. The procedures employed in service and repair will be the same as expected in the industry. Each student will be expected to show individual ability and initiative in determining the troubled area of heavy equipment. Prerequisite: HEV 1103.

HEV-1107 Power Train Systems

(2 - 0 - 6 - 4)

This course is designed to go into all types of power trains in heavy equipment. A study of the theory of power trains will be presented and applications of maintenance and repair will give each student an opportunity to review various types of power trains. Actual experience in the operation of power trains will be required to give each student an overview of a variety of experiences. Special tools and instruments used in maintenance and repair of power trains will be presented.

HRM-101 Hospitality Orientation

(3 - 0 - 0 - 3)

Traces the growth and development of the hospitality industry from early inns to modern day food and lodging complexes that have become an integral part of our society. This course offers the student an overview of the hospitality industry; its size and scope; nature and scope of the market it serves; types of establishments it includes; how hotels, motels and restaurants are organized; purposes and functions of each department within the hospitality operation. Emphasis will be placed on giving the student an insight into the problems in the hospitality industry and the importance of sound relationship with both the public and other operations within the industry. Prerequisite: None.

HRM-102 Business Law

(3 - 0 - 3)

A general course designed to acquaint the student with certain fundamentals and principles of business law, including contracts, negotiable instruments, and agencies. Prerequisite: None.

HRM-104 Food Purchasing I

(2 - 2 - 0 - 3)

To indicate the functions and administrative operation of the food buyer's department in hotels and restaurants. Methods and procedures for purchasing food will be instructed to the students in order for them to place actual orders required for the preparation of a given meal. Markets, comparative price buying, yields and quality control will also be discussed. Standard specifications will be established. Storing, issuing and receiving controls will also be discussed. Prerequisite: None.

HRM-105 Hotel Accounting

(5 - 2 - 6)

This course will present a study of all forms and procedures required in accounting systems in motels and hotels. Accounting for cash receipts, expenditures and deposits will be required. Practical application of hotel-motel accounting principles and techniques will be carried out in the Institute's own motel and office complex. Prerequisite: HRM 107.

HRM-107 Basic Hotel Accounting

(5 - 2 - 6)

Principles, techniques, and tools of accounting, collecting, summarizing, analyzing, and reporting information about service enterprises. Prerequisite: MAT 110.

HRM-108 Food Cost Control

(3 - 0 - 0 - 3)

To instruct the students in food cost accounting techniques as related to purchasing, receiving, storing, issuing, production and revenue controls. Inventories, perpetual and physical, will be taken periodically. Menu and portion costing will be maintained for every meal served. Food costs percentages and cost control records will be kept and their applications will be maintained. Forecasting and sales histories will be discussed.

HRM-109 Food Purchasing II (2 - 2 - 0 - 3)

Receiving and issuing techniques, storeroom operation, requisitioning, and record keeping will be assigned by the instructor. Grades versus prices regarding the types of preparation will be stressed. Meat cuts will also be discussed and demonstrated.

***HRM-110 Supervised Work Experience (2 - 40 - 6)**

This course is planned to give the student an opportunity to work in the industry and gain practical experience. The student must receive the approval of the department chairman prior to employment and must have completed all major courses through the third quarter with an average of "C" or better to be allowed to partake in this quarter's work. Upon the completion of the supervised work experience, it will be left to the discretion of the department chairman to allow readmittance of the student to continue into the second year. Prerequisite: Successful completion of major courses through 3rd quarter.

HRM-205 Front Office Procedures (2 - 4 - 4)

This course will present a study of the various aspects of the front office of the hotel and motel. This will include the procedures in registration, night auditing transcript preparation, daily reports, and accounting for all guests on the premises. A study of all office machines used in the field will be presented as well as standard check-in and check-out procedures and telephone requirements, reservations and room service will be presented. A great deal of emphasis will be placed upon the crucial human and public relations responsibilities of the front office staff. Practical application of all principles will be provided for in the Institute's own luxury motel complex. Prerequisite: HRM 105.

HRM-206 Business Management in Hotels and Restaurants (3 - 0 - 3)

A brief trip into the various areas in which an executive functions in the Hospitality Industry. Approaching the responsibilities of management with maturity, developing the organization, exploring the planning process, formulating personnel policy, use of accounting for decision making, the marketing approach to business development, and the importance of systems and controls are covered. A research paper relating to one of the functional areas is required.

HRM-207 Laws of Innkeeping (5 - 0 - 5)

Presents a highly technical subject in non-technical language. The course is designed to help the student understand the attitudes of the courts when an innkeeper is involved in litigation, and to create an awareness of the many responsibilities which the law imposes upon the innkeeper. The emphasis in this course is upon the reason for the rules of law and the values or interests involved. The object is to give the student an understanding and a sense of balance rather than a series of specialized rules to memorize. Prerequisite: HRM 102.

HRM-208 Supervisory Housekeeping (3 - 2 - 4)

Provides the student with a basic foundation in the principles of hotel-motel housekeeping. The course will provide thorough training in planning and implementing objectives, staffing and scheduling, work methods and improvements, cleaning supplies, maintenance equipment and procedures, layout and safety. Practical application of all principles will be provided for in the Institute's own luxury motel complex. Prerequisite: None.

HRM-209 Personnel Management in the Hospitality Industry (3 - 0 - 0 - 3)

Gives to the student an acute awareness of the problems in an industry which offers service to the public performed by many employees; the problems of labor supply, selection, training, promotion, and morale. This course is really a compilation of the principles and practices already found to be of great value in hotels, motels and restaurants in the management of employees. Emphasis is placed upon the general principles which may be applied in any size operation, from department heads to general manager of a large hotel. The needs and purposes of the employer, the welfare and desires of the employees and the interest and demands of the community will be taken into account as the influence employer-employee relations. Prerequisite: First Year Curriculum.

HRM-210 Tourism (1 - 2 - 2)

This course is designed to acquaint the student with the world wide activity of tourism. A study will be made as to what makes up tourism and the components of the travel industry. The various modes of travel and why people travel will be discussed. Emphasis will be placed on the organization of tourism and the effect it has on the economy.

HRM-211 The Financial Ingredient in Foodservice Management (3 - 2 - 4)

Financial controls based on good accounting data are indispensable to the success of any business enterprise. This course reviews the history of the industry and finance, background of double entry bookkeeping, and how it is applied in actual practice. Demonstrates the use of accounting techniques in analyzing business performance, budgeting, cost control, and profit planning.

HRM-212 Sales Promotion and Advertising in Hotels, Motels and Restaurants (2 - 2 - 3)

This course is designed to present a study of the advertising media used by hotels, motels and restaurants. Methods and practices used to establish a favorable image and gaining public recognition will be presented. The civic responsibilities of the Hospitality Industry and social activities, such as conventions and special functions will be considered. Promotional projects used to advertise services will be carried out. Prerequisite: First Year Curriculum.

HRM-213 Food Service Sanitation (3 - 0 - 3)

Sanitation is a subject of significance for the food service industry. This course deals with the basic facts of sanitation and how to prevent food-borne illness through an understanding and implementation of the principles of food protection.

***HRM-214 Engineering Layout and Design (2 - 4 - 4)**

This course is two fold; first it will present a study of the various types of systems used in heating, ventilation, air conditioning and refrigeration in hotels, motels and restaurants. Special consideration will be given to traffic flow, and general building repair. This course will also outline procedures for planned preventive maintenance. In addition, a portion of the course will be devoted to design and layout of equipment and furnishings in the hospitality industry. Equipment changes, new products and processes, current labor conditions, competition, quality and cost control will be studied in relation to the planning of food and/or lodging facilities. Prerequisite: First Year Curriculum.

***HRM-215 Beverage Cost Control (3 - 0 - 3 - 4)**

Offers a systematic study of the principles of effective beverage cost controls. This covers the entire beverage operation from purchasing, receiving and storage, the preparation, service, and most important, sales and inventory accountability. Particular emphasis will be placed upon calculating beverage costs and establishing standards of preparation and service. The course will concisely sum up the knowledge and principles of beverage cost controls that have taken operators years to learn by practical experience. In order to demonstrate how the principles are applied in a practical situation, a complete beverage department and cost accounting system has been created. Prerequisite: First Year Curriculum.

ISC-102 Industrial Safety (3 - 0 - 3)

Problems of accidents and fire in industry. Management and supervisory responsibility for fire and accident prevention. Additional topics cover accident reports and the supervisor; good housekeeping and fire prevention; machine guarding and personnel protective equipment; state industrial accident code and fire regulations; the first aid department and the line of supervisory responsibility; job instruction and safety instruction; company rules and enforcement; use of safety committees; insurance carrier and the Insurance Rating Bureau; Occupational Safety & Health Act (OSHA); and advertising and promoting a good safety and fire prevention program. Prerequisite: None.

ISC-202 Quality Control (3 - 2 - 4)

Principles and techniques of quality control and cost saving. Organization and procedure for efficient quality control. Functions, responsibilities, structure, costs, reports, records, personnel and vendor-customer relationships in quality control. Sampling inspections, process control and tests for significance. Prerequisite: None.

ISC-203 Time and Motion Study*(3 - 2 - 4)**

Principles of motion economy, tools for motion study, time study methods and practice; standard data and formula construction; use of methods-time measurements as a substitute for time studies. Prerequisite: None.

ISC-209 Plant Layout**(3 - 2 - 4)**

A practical study of factory planning with emphasis on the most efficient arrangements of work areas to achieve lower manufacturing costs. Layouts for small and medium-sized plants, layout fundamentals, selection of production equipment and materials handling equipment. Effective management of men, money and material in a manufacturing operation. Prerequisite: Consent of Faculty Advisor.

ISC-211 Work Measurement**(3 - 2 - 4)**

Principles of work simplification including administration of job methods improvement, motion study fundamentals and time study techniques. Use of flow process charts; multiple activity charts, operation charts, flow diagrams and methods evaluation. Prerequisite: ISC 203.

MAT-100 Basic Mathematics**(5 - 0 - 5)**

Introduction to mathematics including operations with numbers, fractions, per cent, dimensional analysis, signed numbers, elementary algebra, linear equations, basic plane and solid geometry with emphasis on applications. Prerequisite, entrance requirements.

MAT-101 Algebra and Trigonometry I**(5 - 0 - 5)**

Number systems of various bases are introduced. Fundamental algebra operations, the rectangular coordinate system, as well as fundamental trigonometric concepts and operations are introduced. The application of these principles to practical problems is stressed. Prerequisite: MAT 100.

MAT-102 Algebra and Trigonometry II**(5 - 0 - 5)**

A continuation of MAT 101. Advanced algebraic and trigonometric topics include quadratics, logarithms, determinants, matrices, progressions, the binomial expansion, complex numbers, solution of oblique triangles and graphs of the trigonometric functions. Prerequisite: MAT 101.

MAT-103 Analytical Geometry and Calculus I**(5 - 0 - 5)**

The fundamental concepts of analytical geometry, differential and integral calculus are introduced. Topics included are graphing techniques, geometric and algebraic interpretation of the derivative, differentials, rate of change, the integral and basic integration techniques. Applications of these concepts to practical situations are stressed. Prerequisite: MAT 102.

MAT-105 Introduction to Algebra**(3 - 0 - 3)**

A study of algebra stressing solutions of equations and practical applications. Prerequisite: None.

MAT-106 Introduction to Mathematics**(5 - 0 - 5)**

This course embodies an introduction to mathematics including operation with whole numbers, fractions, per cents, metric terminology, elementary algebra, and statistics with emphasis on practical application involved in the Allied Health field.

MAT-108 Business Arithmetic**(5 - 0 - 5)**

A review of the fundamental processes; addition, subtraction, multiplication and division of whole numbers, common fractions and decimal fractions; and percentages. Topics covered include interest and bank discounts, payroll records, taxes, retailing costs, markups and discounts.

MAT-109 Business Math, Hospitality Indus.**(5 - 0 - 5)**

This course focuses on the essentials of mathematics required in the food service/lodging industry. Topics covered include arithmetic operations with whole numbers; rational numbers, decimals, and percentages. Fundamental principals of business mathematics are used in practical problems of the food service/lodging industry.

MAT-110 Business Mathematics I**(5 - 0 - 5)**

This course stresses the fundamental operations and their applications to business problems. Topics covered include payrolls, price marking, interest and discount, commission, taxes, and pertinent uses of mathematics in the field of business. Prerequisite: None.

MAT-112 Mathematics of Finance**(3 - 2 - 4)**

This course consists of practical application of business financial transactions involving analysis of statements, interest, present value, yield, discount, compound interest, annuities, extinction of debt and depreciation. Use of modern calculating equipment will be employed. Prerequisites: MAT 110, or MAT 101.

MAT-121 Numbering Systems and Boolean Algebra**(3 - 0 - 3)**

It is a study of various numbering systems with emphasis on the binary, octal and hexademical as related to one another, the decimal system, and computers; cover-sions from one system to another; arithmetic operations in non-decimal systems; elementary logic; and boolean algebra. Prerequisite: None.

MAT-201 Calculus II**(5 - 0 - 5)**

A continuation of MAT 103. More advanced concepts of differentiation and integration are considered. Included are derivatives of the trigonometric functions, exponential and logarithmic differentiation and integration, advanced integration techniques, polar equations, parametric equations. Prerequisite: MAT 103.

MAT-204 Applied Mathematics**(5 - 0 - 5)**

A study of geometric principles and trigonometry as related to engineering and related shop applications. Emphasis will be placed on practical application of geometric theroms, right triangle and oblique triangle trigonometry and dimensional analysis. Prerequisite: MAT 102.

MAT-214 Statistics**(5 - 0 - 5)**

This is an introduction to statistics with emphasis on data analysis including frequency distributions, measures of location and variation; and probability. Practical problems support the theory. Prerequisite: MAT 101 or MAT 105.

MAT-1101 Fundamentals of Mathematics**(5 - 0 - 0 - 5)**

Analysis of basic operations; addition, subtraction, multiplication and division. Fractions, decimals, powers and roots, percentages, ration and proportion. Plane and solid geometric figures used in industry; measurement of surfaces and volumes. Introduction to algebra used in trades. Practice in depth. Prerequisite: None.

MAT-1103 Geometry**(3 - 0 - 0 - 3)**

Fundamental properties and definitions; plane and solid geometric figures, selected general theorems, geometric construction, areas and volumes of solids. Geometric principles are applied to shop operations. Prerequisite: MAT 1101.

MAT-1104 Trigonometry**(3 - 0 - 0 - 3)**

Trigonometric ratios; solving problems with right triangles, using tables, and interpolation. All topics are applied to practical problems. Prerequisite: MAT 1103.

MAT-1123 Machinist Mathematics**(3 - 0 - 0 - 3)**

Introduces gear ratio, lead screw and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric propositions and trigonometric relations to shop problems; concludes with an introduction to compound angle problems. Prerequisite: MAT 1104.

MAT-1203 Trigonometry**(5 - 0 - 0 - 5)**

A basic review of mathematics will form a foundation for a study of trigonometry of right triangles, oblique triangles, and dimensional analysis. Applications to typical problems found in the tool and die shop will be presented and solutions will be found by using mathematics. Prerequisite: MAT 1123.

MAT-1204 Compound Angles**(5 - 0 - 0 - 5)**

The application of trigonometry and geometry are presented to solve compound angle problems. This course will use as many practical problems as possible to enable the student to work with typical problems. Prerequisite: MAT 1203.

***MEC-101 Machine Processes (2 - 4 - 4)**

A course to acquaint the student with basic machine tools of industry through lectures, demonstrations, and hands-on practice. It will include the study of safety practices; measuring instruments; characteristics of basic machine tools, materials, and cutting tools; and actual experience on lathe, drill press, milling machines, shaper, and grinder. Prerequisite: None.

***MEC-105 Statics (5 - 0 - 5)**

Concepts and basic principles of statics. Parallel concurrent, and non-current force systems in coplanar and noncoplanar situations. Concepts of friction. Prerequisites: MAT 102, PHY 102.

***MEC-111 Manufacturing Processes (3 - 3 - 4)**

An introduction to the field of manufacturing processes to include material properties, metal stamping and drawing, casting, forging, die casting, metal joining, heat treating, plastic processing, adhesives, metal finishing, and protective coatings. Prerequisite: None.

***MEC-205 Strength of Materials (5 - 0 - 5)**

Study of the basic principles by which stresses and strains are induced in beams, members and structures by imposed loads. Analyses of stresses are made as applied to beams, columns, thin-walled cylinders, spheres, riveted and welded joints, and machine components. Prerequisite: MEC 105, MAT 102.

MEC-206 Dynamics (3 - 0 - 3)

Study of change of position or motion as it affects machines and their mechanical components. The subjects of mathematical vectors and kinematics used for design of mechanisms and cams, etc., are introduced. Dynamics formulae are presented and explained. Work problems are provided. Prerequisites: MEC 105, MAT 103, and MEC 205.

***MEC-208 Machine Design (4 - 0 - 4)**

A survey course with the selection of components in mechanical design, such as power trains, gearing, bearings, shafts, keys, springs, belts, couplings, clutches, brakes, etc., through the use of design information, standards, handbooks, etc. Prerequisite: MEC 205.

***MEC-209 Machine Design (4 - 0 - 4)**

Study of factors affecting the design of machine elements. Empirical and theoretical equations, practical considerations, and procedures of designing are included. Students given practice in applying knowledge of strength and properties of materials, manufacturing processes, economics of production, safety, and elements of good design through problem assignments. Prerequisite: MEC 208.

***MEC-210 Physical Metallurgy (3 - 3 - 4)**

Introductory course in metallurgy, a basic study of the properties of metals and alloys. Analysis of the structure of metals and alloys. Atomic structure, and its effect on physical properties. Solid (crystalline) structures, methods of designating crystal planes. Liquid and vapor phases, phase diagrams, and alloy systems. Laboratory work to include useful field trips to local industries. Prerequisites: PHY 101, MAT 102. 101, MAT 102.

MEC-211 Basic Physical Metallurgy (3 - 3 - 4)

An introductory course in the uses of metals and alloys, together with the basic necessary theory for proper metallic materials application. Basic metallurgical theory will be briefly presented. The available common steels and non-ferrous alloys will be discussed. Laboratory work will include physical testing of metal specimens, reading of test results, and field trips to related local industries. Prerequisite: PHY 101.

MEC-212 Practical Automation (3 - 0 - 3)

An introductory evaluation of automation as it is interpreted and practiced by American industry of today. The fundamentals of automation and its effects in industrial productivity, labor and demand, equipment and processes. Students will solve problems encountered installing an automated system. Laboratory work to include field trips to local industrials. Prerequisite: None.

MEC-220 Power Systems**(3 - 2 - 4)**

Survey of energy conversion systems such as the internal combustion engine, power plant, gas turbine, and refrigerator. Basic thermodynamic principles and laws introduced. Prerequisites: PHY 102, MAT 103.

MEC-235 Hydraulics and Pneumatics**(3 - 3 - 4)**

The basic theories of hydrostatic and pneumatic systems. Combinations of systems in various circuits. Basic designs and functions of circuits and motors, controls, electrohydraulic servomechanisms, plumbing, filtration, accumulators and reservoirs. Laboratory work to include field trips to local industries. Prerequisite: PHY 102.

MEC-1101 Elementary Hydraulic Principles**(2 - 3 - 0 - 3)**

Students will be introduced to the principles of hydraulic systems as they apply in the heavy equipment area. The theory of hydraulic systems must be understood thoroughly before the students can progress into actual work on hydraulic systems. Various aspects of heavy equipment will be used to demonstrate these principles and theories. Prerequisite: None.

MEC-1115 Treatment of Ferrous & Non-Ferrous Metals**(1 - 0 - 3 - 2)**

Investigate the properties of ferrous metals and tests to determine their uses. Instructions will include some chemical metallurgy to provide a background for the understanding of the physical changes and causes of these changes in metals. Physical metallurgy of ferrous metals, producing iron and steel, theory of alloys, shaping and forming, heat treatments for steel, surface treatments, alloy of special steel, classification of steels, and cast iron will be topics for study. Prerequisite: None.

MEC-1124 Metallurgy**(3 - 0 - 0 - 3)**

An introduction course in metallurgy, a basic study of properties of metals and alloys directed to the welding curriculum. Instructions include extractive metallurgy, alloys and their purpose, standards and classification, heat treatment, and trouble shooting. A thorough knowledge of the effects of heating and cooling is very essential to the welding student. Prerequisite: None.

MEC-1203 Metallurgy**(3 - 0 - 0 - 3)**

This is a study of a special group of steels used by the tool and die industry. Students are concerned with the selection, machining, and heat treating of these steels. Troubleshooting to find the reason for possible failure of the steel and the remedy required will be an important part of this course. Prerequisite: None.

MEC-1205 Strength of Materials**(5 - 0 - 0 - 5)**

A study of stresses and shears that occur in materials when subjected to tensile, compressive, and/or shearing forces. Stresses in thin walled cylinders, riveted and welded joints, shear and bending moment diagrams, deflection, eccentrically applied loads, torsion, and factors of column design will be emphasized. Prerequisite: MAT 1203.

MEC-1209 Hydraulics and Pneumatics**(3 - 0 - 0 - 3)**

A basic study of the principles of power hydraulics. Component parts such as reservoirs, strainers, filters, piping and fittings, motors, pumps, and valves will be thoroughly studied. Practical circuits and systems will be covered especially as they are used in the tool and die industry. Prerequisite: None.

MES-1101 Machine Shop*(3 - 0 - 12 - 7)**

An introduction to the machinist trade and the potential it holds for craftsmen. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice. Prerequisite: None.

MES-1102 Machine Shop*(3 - 0 - 12 - 7)**

Advanced operations in layout tools and procedures, power sawing, drill press, surface grinder, milling machine shaper. The student will be introduced to the basic operations on the cylindrical grinder and will select projects encompassing all the operations, tools and procedures thus far used and those to be stressed throughout the course. Prerequisite: MES 1101.

- *MES-1103 Machine Shop** (3 - 0 - 12 - 7)
Advanced work in the engine lathe, turning, boring and threading machines, grinders, milling machine and shaper. Introduction to basic indexing and terminology of spur, helical, and worm gears and wheels. The trainee will use precision tools and measuring instruments such as vernier height gages, protractors, comparators, etc. Basic exercises will be given on the turret lathe and on the tool and cutter grinder. Prerequisite: MES 1102.
- *MES-1104 Machine Shop** (3 - 0 - 12 - 7)
Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly and inspection. Addition processes on the turret lathe, tool and cutter grinder, cylindrical and surface grinder, advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedures faithfully and establishing of good work habits and attitudes acceptable to the industry. Prerequisite: MES 1103.
- *MES-1112 Machine Shop Processes** (1 - 3 - 0 - 2)
An introduction to machine shop. Deal primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of lathe, drill press, grinding (off-hand) and milling machines will be introduced both in theory and practice. Prerequisite: None.
- MLA-100 Introduction to Medical Laboratory Technology** (3 - 0 - 0 - 3)
This course is to familiarize the student with the profession of Medical Laboratory Technology as related to other allied health areas. Professional and medical ethics are stressed. A basic introduction to laboratory equipment and terminology is also presented. Prerequisite: None.
- *MLA-101 Clinical Experience I** (0 - 0 - 24 - 8)
This time is spent in the Clinical Laboratory at Memorial Mission Hospital. It is an "on the job" type training under the supervision of a Clinical Pathologist and Medical Technologists. The student will rotate through the following clinical areas: Hematology, Urinalysis, Chemistry I and II, Microbiology, Serology, Blood Bank and Blood Collection. Measurement of the student's performance will be made by the Department Chairman's and/or Medical Technologist's evaluation. Instruments for measurement will be: Workbook, written and oral examinations, and evaluation of general aptitude. Prerequisite: None.
- *MLA-102 Hematology I** (1 - 2 - 0 - 2)
An introduction to the formation and functions of blood cells. The study of the peripheral blood smear and laboratory practice. Prerequisite: None.
- MLA-105 Hematology II** (2 - 2 - 0 - 3)
A study of the formation and function of hemoglobin and platelets. Determination of hematocrit, platelets, erythrocytes, sedimentation rate, red cell fragility, and the principles involved will be studied. Prerequisite: MLA 102.
- MLA-106 Urinalysis** (1 - 2 - 0 - 2)
The study of the formation of urine and urinalysis. The importance of the role urinalysis plays in the diagnosis of disease is emphasized. Prerequisite: None.
- MLA-107 Clinical Chemistry I** (1 - 2 - 0 - 2)
A study of the biochemical products involved in human metabolism particularly carbohydrates, protein and enzymes. The study also includes the theory and techniques used in the clinical chemistry laboratory. Prerequisites: None.
- *MLA-108 Clinical Experience II** (0 - 0 - 24 - 8)
A continuation of MLA-101. Clinical Experience I. Prerequisite: MLA 101.
- MLA-110 Hematology III** (2 - 2 - 0 - 3)
A study and practice of the enumeration of the formed elements of blood. Also, a study of red cell indices. Prerequisite: MLA 105.
- MLA-112 Clinical Chemistry II** (1 - 2 - 0 - 2)
A continuation of MLA-107, Clinical Chemistry I. Prerequisite: MLA 107.

- *MLA-113 Clinical Experience III** (0 - 0 - 24 - 8)
A continuation of MLA 108, Clinical Experience II. Prerequisite: MLA 108.
- MLA-114 Immunohematology I** (2 - 2 - 0 - 3)
Study of techniques utilized in donor screening, phlebotomies, and the general principles of immunohematology. Prerequisite: MLA 105.
- MLA-115 Bacteriology I** (1 - 2 - 0 - 2)
An introduction to the routine techniques of clinical bacteriology and the study of gram positive and gram negative cocci and their identification. Prerequisite: None.
- MLA-116 Bacteriology II** (1 - 2 - 0 - 2)
A study of gram positive and gram negative bacilli and methods of identifying them. Prerequisites: MLA 115.
- MLA-118 Immunohematology II** (1 - 2 - 0 - 2)
An introduction to immunohematology techniques and theory. Prerequisite: MLA 114.
- *MLA-119 Clinical Experience IV** (0 - 0 - 24 - 8)
A continuation of MLA 113, Clinical Experience III. Prerequisite: MLA 113.
- MLA-120 Parasitology** (1 - 2 - 0 - 2)
Study of common parasites. Practice in techniques used in identifying parasites in body specimens. Prerequisite: None.
- MLA-121 Hematology IV** (1 - 2 - 0 - 2)
The source, method of examination, and normal values of the body fluids such as spinal fluid, synovial fluid, sputum and seminal fluid are studied. Laboratory sessions will include in depth practice with peripheral blood smear. Prerequisite: MLA 110.
- *MLT-200 Immunohematology III** (2 - 2 - 0 - 3)
A study of special procedures in immunohematology: Antibody identification, elution, absorption, exchange transfusion, prevention of hemolytic disease of the newborn, and problem crossmatching. Prerequisite: MLA 118.
- MLT-201 Bacteriology III** (1 - 2 - 0 - 2)
A study of the practical application of the identification of microorganisms by routine cultures. Prerequisite: MLA 116.
- *MLT-202 Clinical Experience V** (0 - 0 - 24 - 8)
A continuation of MLA 119, Clinical Experience IV, with practice in more specialized procedures. Prerequisite: MLA 119.
- MLT-205 Hematology V** (2 - 2 - 0 - 3)
A study of abnormal hematology: Anemias, leukemias, etc., with in depth study and practice of laboratory methods of diagnosis. Prerequisite: MLA 121.
- *MLT-206 Clinical Experience VI** (0 - 0 - 24 - 8)
A continuation of MLT 202, Clinical Experience V. Prerequisite: MLT 202.
- MLT-208 Clinical Chemistry Values** (2 - 0 - 0 - 2)
A correlation of clinical chemistry results with the patient's status and other laboratory results. Prerequisite: MLA 112.
- *MLT-209 Clinical Experience VII** (0 - 0 - 24 - 8)
A continuation of MLT 206, Clinical Experience VI. Prerequisite: MLT 206.
- *MLT-211 Instrumentation** (3 - 0 - 0 - 3)
Review of the basic theory of electricity and properties of light are taught to prepare the student in medical technology for theory of electrical and colorimetric instruments. Operation of and preventive maintenance on laboratory equipment form the framework of this course. Prerequisite: MLT 208.
- *MLT-212 Clinical Experience VIII** (0 - 0 - 24 - 8)
A continuation of MLT-209, Clinical Experience VII. Prerequisite: MLT 209.

NUR-101 Fundamentals of Nursing I (4 - 5 - 6)

This course provides an introduction to basic concepts of health care and the role of the technical nurse as a member of the contemporary health team. Emphasis is placed upon basic human needs, psychosocial reactions to illness, hazards of immobility, principles of asepsis and the nursing process as a means of planning and implementing care. Medical terminology is integrated throughout. Concurrent laboratory experience provides time for the acquisition of skill in the basic nursing procedures. Prerequisite: None.

***NUR-103 Fundamentals of Nursing II (4 - 8 - 7)**

This course incorporates two units. Normal nutrition encompasses study of the basic four food groups and body requirements of the basic nutrients in health. In basic pharmacology the student learns about broad groups of therapeutic agents, gains proficiency in utilizing the apothecary-metric system conversion in determining dosage and administers medications by the various routes to patients. Hospital experience provides the opportunity for the student to implement basic nursing care. Prerequisite: CHM 101, NUR 101.

***NUR-105 Fundamentals of Nursing III (4 - 8 - 7)**

Centering around the Principle of homeostasis, this course includes the study of body defenses against morbidity and progresses to the fundamentals of neoplastic disorders, fluid-electrolyte imbalance and communicable disease. The student learns the basic techniques for intravenous and oxygen therapy and pre and post operative care. In the hospital setting, the student more skillfully adapts care to meet individual patient needs. Prerequisites: BIO 102, CHM 101, NUR 103.

NUR-125 Nursing Procedures (1 - 0 - 1)

This course acquaints the student with nursing procedures and techniques used in the general care of the patient with emphasis on the role of the radiologic technologist in various nursing situations.

***NUR-206 Psychiatric Nursing (4 - 6 - 6)**

In this course, the fundamental dynamic concepts of the mind and mental health, the agencies of the mind, and personality adjustment mechanisms are reviewed as a background for the study of the mental disorders—neuroses, psychoses, and personality disorders. Emphasis is placed upon symptomatology and treatment and especially upon the related nursing care. Principles of a therapeutic nurse-patient relationship are learned, and an opportunity to apply them is provided in a local psychiatric hospital. Prerequisite: PSY 203. NUR 105.

***NUR-207 Maternity Nursing (4 - 6 - 6)**

Maternity Nursing centers on the needs of mothers and newborn infants during the reproductive experience. The student is assisted in viewing these individuals within the structure of the family and appreciating the meaning of reproduction to the family.

Subject material focuses on the normal aspects of the childbearing process with brief consideration given to the major complications of the maternity cycle and the common deviations of the newborn. Throughout the course of study the student is assisted in the acquisition of knowledge and nursing skills necessary for the promotion of comfort, health and safety of the mother and her infant. Prerequisites: BIO 103, NUR 105.

***NUR-208 Growth and Development (3 - 0 - 3)**

This course is designed to give the student an understanding of the growth and development of the child from infancy through adolescence. Emphasis is placed on the recognition of normal responses of the child in physical growth, motor and language developments, moral and social development, and play habits. Prerequisite: None.

***NUR-210 Nursing in Physical and Mental Illness I (8 - 16 - 14)**

This course is designed to guide the student in acquiring knowledge and skills in order to meet the physical, psychological and social needs of the adult and pediatric patient with respiratory, cardiac and integumentary problems. Nutrition, drug therapy and nursing of children are correlated with appropriate course content. The student initiates nursing care for the patient preoperatively, observes the nursing activities in the operating room, and continues this experience by giving direct care to the patient during his immediate recovery period. Prerequisite: NUR 206 and NUR 207.

***NUR-211 Nursing Trends and Professional Ethics (3 - 0 - 3)**

Attention is given to the history and organizational structure of nursing and to the development of the new graduate's responsibilities and opportunities in the area of employment, involvement in continuing education, and the relationship of the ADN graduate to the health team members. Prerequisite: None.

***NUR-212 Nursing in Physical and Mental Illness II (8 - 16 - 14)**

This course is designed to guide the student in acquiring knowledge and skills in order to meet the physical, psychological and social needs of the adult and pediatric patient with problems involving metabolic processes from the availability of nutrients to the excretion of waste materials. Nutrition, drug therapy and nursing of children are correlated with appropriate course content. Through selected adult and pediatric experiences, the student is given the opportunity to utilize the nursing process in implementing care. Prerequisite: NUR 208 and NUR 210.

***NUR-213 Nursing Leadership (2 - 0 - 2)**

The purpose of this course of study is to present the conceptual framework of team nursing and to incorporate its principles into a planned clinical experience for senior students. The major principles of planning, implementation, and evaluation of nursing care and of the direction of team personnel are taught. Emphasis is placed on human relations and managerial skills.

***NUR-214 Nursing in Physical and Mental Illness III (7 - 8 - 13)**

This course of study is concerned with the pathological alterations and nursing needs of adult and pediatric patients with problems affecting the ability to respond to stimuli and temporary or permanent loss of motion. Nutrition, drug therapy and nursing of children are correlated with course content. Nursing practice is goal directed to stimulate the student to think critically, to solve nursing problems, to make appropriate nursing judgements, and to objectively evaluate personal actions based upon physical, psychological and social factors. Prerequisite: NUR 212.

NUT-202 Nutrition (3 - 0 - 3)

A study of the basic principles of nutrition and its relationship to health and disease, including human nutrition, community nutrition, and diet therapy.

OTC-100 Spelling and Punctuation Study (3 - 0 - 3)

A course designed to help the student overcome spelling difficulties and build punctuation ability. Concentration will be placed on rules of spelling, use of the dictionary, and a punctuation review. Prerequisite: ENG 111 or 101, ENG 100.

OTC-101 Basic Typewriting (2 - 3 - 3)

A competency-based introduction to typewriting fundamentals, (keyboard control and techniques), correspondence, and centering applications.

OTC-102 Fundamentals of Typewriting (1 - 3 - 2)

An introduction to the typewriting skills necessary for technical or vocational use. Keyboard control and techniques are developed after an introduction to the principal parts of the typewriter and the keyboard.

OTC-103 Advanced Typewriting (2 - 3 - 3)

A concentrated effort to continue speed building while more strongly stressing accuracy and introducing correction skills. Production work continues on letters, manuscripts and reports, and form typing is introduced. Speed Requirement: 32 words per minute for five minutes. Prerequisite: OTC-101 or SSC-101.

OTC-105 Expert Typewriting (2 - 3 - 3)

An emphasized development of sustained production on various types of typewriting problems and perfected learning of the mechanism, operation, and care of the typewriter. The speed-building emphasis continues with increased attention to accuracy. Speed requirement: 49 words per minute for five minutes. Prerequisite: OTC 103 or SSC 103.

***OTC-111 Office Machines (2 - 2 - 3)**

Designed to introduce the student to the operation of several basic office machines including bookkeeping-accounting machines, reproduction machines, dictation-transcribing equipment, and other office machine functions. Special emphasis is placed on the proper care of the equipment. Prerequisite: BUS 110 and OTC 103.

OTC-113 Personal Development (3 - 0 - 3)

Emphasis on grooming, health habits, nutrition, dress, and human relations, and the manner in which each applies to success on the job.

OTC-114 Awareness (2 - 0 - 2)

Awareness is an attempt to immerse the students into their present worlds, their probable future worlds, and the worlds of those around them. It is an effort to encourage the student to explore the issues central to personal awareness and to allow him to make contact with the things which interest and distract.

OTC-116 Filing (5 - 0 - 5)

Skill development in records control through instruction in filing principles and theories and actual practice through the use of miniature copies of filing materials. Prerequisite: None.

OTC-205 Professional Typewriting (2 - 3 - 3)

Job-performance competency is sought through attention to accuracy and correction techniques, and integration of prior speed building and previously learned English. It also includes composition skills related to production work from rough drafts and simulated dictation copy. Speed requirement: 60 words per minute for five minutes. Prerequisite: OTC 105 or SSC 105.

***OTC-211 Typing Office Practice (2 - 3 - 3)**

The student will be expected to complete more sophisticated typing routines with speed and accuracy. These routines include the typing of manuscripts, tables, statistics, business forms, duplication, executive and legal problems. Prerequisite: OTC 105, OTC 116.

***OTC-213 Office Procedures (3 - 2 - 4)**

This course is designed to give the student training in the various skills necessary in performing office routines. The student will work with one fictitious company, having four departments. The experience affords the student the opportunity to work for a large company while at the same time preparing him for the duties of the small office. Prerequisite: OTC 105, OTC 111 & OTC 116.

OTC-214 Machine Transcription (2 - 3 - 3)

The student will learn how to transcribe mailable letters and other office communications by transcription from machines. The student will be expected to produce from tapes and belts mailable letters which are free from errors of punctuation, spelling and form. Prerequisites: OTC 105, OTC 111, OTC 100, & ENG 111.

OTC-216 Payroll Procedures (5 - 0 - 5)

The student will learn to keep the earning records for various salaried employees. The record keeping will include accounting for earnings, deductions for benefits, Social Security payments, Federal and State Income Tax reporting. The student will also learn to complete quarterly tax return statements. Prerequisite: BUS-117.

***OTC-218 Cooperative or Supervised Education (0 - 15 - 5)**

The student will be placed on the job or in a supervised classroom setting in order to encounter a variety of work experiences. These experiences should allow the student to relate more meaningfully to the world of work and to a specific place in the world of work. Prerequisite: successful completion of all course work.

- *OTC-220 Seminar on Cooperative Education** (2 - 0 - 2)
 During the seminar sessions, the working student will discuss the problems encountered in the position and the means to overcome these problems.
- OTC-272 Vocabulary Building** (2 - 0 - 2)
 A course designed to help students become more aware of an increasing number of English words. By studying prefixes, suffixes, and root words, and by applying certain basic vocabulary building techniques, the student will increase in both active and passive vocabularies. Prerequisite: None.
- PED-100 Archery-Badminton** (0 - 3 - 1)
 Approximately five weeks will be spent on each area. Fundamentals of the use of the bow and arrow and aiming methods used in archery. Fundamental skills of serving, forehand swing, and backhand plus familiarization with rules in badminton. Course includes the development of skills through individual instruction and participation.
- PED-101 Beginner Tennis** (0 - 3 - 1)
 A course designed to give beginners a thorough knowledge of the history, rules and strategy as well as the fundamental skills of tennis.
- PED-102 Intermediate Tennis** (0 - 3 - 1)
 This is a follow up course to PED 101 with emphasis on game strategy and doubles play.
- PED-103 Advanced Tennis** (0 - 3 - 1)
 This course is designed to provide students with an opportunity to place into practice the skills developed in PED 101 and PED 102. Emphasis is placed on actual playing time to sharpen previously learned skills & strategies against players of advanced abilities.
- PED-105 Beginner Bowling** (0 - 3 - 1)
 The fundamentals of ball selection, grips, stance and delivery are taught along with rules, history, scoring and the general theory of spare coverage.
- PED-106 Intermediate Bowling** (0 - 3 - 1)
 This course provides an opportunity to put into practice the knowledge and skills acquired in PED 105. Instruction is supplemented through films and participation at bowling lanes.
- PED-110 Snow Skiing** (0 - 3 - 1)
 The study of the fundamentals of skiing techniques. Emphasis will be on developing skills in christies, parallel skiing, and basic jumps.
- PED-115 Beginner Golf** (0 - 3 - 1)
 A course designed for teaching beginners the grip, stance, swing, and use of the various clubs, along with the history and etiquette of play.
- PED-116 Intermediate Golf** (0 - 3 - 1)
 Emphasis here is placed on rules and etiquette, procedures for playing and the swings involved. Includes playing time at local courses.
- PED-117 Advanced Golf** (0 - 3 - 1)
 This course is designed to provide students with the opportunity to place into practice the skills developed in PED 115 and PED 116. Emphasis is placed on actual playing time at various local golf courses.
- PED-120 Beginner Volleyball** (0 - 3 - 1)
 A course designed to include the fundamental skills, history, rules and strategy of the game.
- PED-121 Intermediate Volleyball** (0 - 3 - 1)
 The course involves the development of the necessary skills and strategies for playing volleyball. Emphasis is placed on proper techniques of play and development of basic skills used in playing.

PED-122 Advanced Volleyball (0 - 3 - 1)

This course is designed to provide students with the opportunity to practice the skills and abilities developed in PED 120 and PED 121. Emphasis is placed on actual playing time to sharpen the previously learned skills and strategies.

PED-125 Beginner Basketball (0 - 3 - 1)

A course designed to teach the history, rules and strategy as well as the fundamental skills of basketball.

PED-126 Intermediate Basketball (0 - 3 - 1)

This course emphasizes physical conditioning and the necessary skills for participation in basketball games.

PED-127 Advanced Basketball (0 - 3 - 1)

A course designed to provide students with an opportunity to place into practice the knowledge, skills, and abilities learned in PED 125 and PED 126. Emphasis is placed on actual playing time to sharpen previously learned skills and abilities.

PED-130 Beginner Physical Fitness (0 - 3 - 1)

A course designed to develop the ability to demonstrate vigorous physical action. The course includes endurance, power, strength, and agility with the purpose of continuing these traits into smooth, effective action both at work and in play.

PED-131 Intermediate Physical Fitness (0 - 3 - 1)

This course is a continuation of PED 130 and is designed to direct the student in a program of physical development and coordinated movement.

PED-132 Advanced Physical Fitness (0 - 3 - 1)

This is a follow up course to PED 131 with greater emphasis on rhythmic activity and emphasis on a planned program for future fitness.

PED-135 Nature Hiking (0 - 3 - 1)

Study includes instruction on how to equip and take care of oneself on the trail, including clothing, hygiene, and necessary equipment. Trail hikes will be taken to practice learned knowledge.

PED-140 Beginner Softball (0 - 3 - 1)

A course designed to include the fundamental skills, history and rules of the game.

PED-141 Intermediate Softball (0 - 3 - 1)

The course includes the development of necessary skills and knowledge for playing softball. Emphasis is placed on proper techniques and proper strategies for playing softball.

PED-142 Advanced Softball (0 - 3 - 1)

The course is designed to provide students with the opportunity to practice the skills and abilities developed in PED 140 and PED 141. Emphasis is placed on actual playing time for practice of previously learned skills and strategies.

PED-145 Fundamental Sports (0 - 3 - 1)

A course designed for students who desire participation in a variety of sports activities including basketball, volleyball, archery, badminton, tennis, softball, gymnastics, fitness, bowling, and golf. Emphasis is placed on acquainting the students with the rules and knowledge of each activity so that participation in sports will be stimulated.

PED-150 Beginner Gymnastics (0 - 3 - 1)

A course designed for teaching the fundamentals of gymnastics on the parallel bars and mats.

PED-151 Intermediate Gymnastics (0 - 3 - 1)

This course is a followup of PED 150 with emphasis on leadership training on gymnastics equipment.

PED-155 Track & Field (0 - 3 - 1)

A course designed to develop knowledge, skill and interest in track and field events.

PED-160 Beginner Weight Training (0 - 3 - 1)

A course designed for teaching the basic skills of body development through weight training.

PED-161 Advanced Weight Training (0 - 3 - 1)

A continuation of the principles learned in PED 160. The student should gain knowledge of the principles of strength development and improve himself physically.

PHY-101 Properties of Matter (3 - 2 - 4)

A fundamental course covering basic principles of physics including solids and their characteristics, liquids at rest and in motion, gas laws and applications. Laboratory experiments and specialized problems dealing with these topics are a part of this course. Prerequisite: MAT 100.

PHY-102 Mechanics (3 - 2 - 4)

Major areas covered in this course are force, motion, work, energy and power. Instruction includes such topics as vectors and graphic solutions, basic machines, friction and torque. Prerequisites: PHY 101, MAT 101.

PHY-103 Electricity (3 - 2 - 4)

Basic theories of A.C. and D.C. including the electron theory and production of electricity by chemical action, friction, magnetism and induction. Industrial application involving the use of voltage, amperage, resistance, horsepower and wattage are major parts of the course. Prerequisite: PHY 101, MAT 102.

PHY-104 Light and Sound (3 - 2 - 4)

A survey of the concepts involving wave motion leads to a study of sound, its generation, transmission and detection. The principles of wave motion also serves as an introduction to a study of light, illumination and the principle involved in optical instruments. Application is stressed throughout. Prerequisites: MAT 101, PHY 102.

PHY-105 Physics (4 - 0 - 4)

This course provides a review of Applied Mathematics and teaches the fundamentals of Electrical and Radiation Physics. Prerequisite: None.

PHY-1101 Applied Science (3 - 2 - 0 - 4)

An introduction to physical principles and their application in industry. Topics in this course include measurement; properties of solids, liquids, and gases; basic electrical principles. Prerequisite: MAT 1101.

PHY-1102 Applied Science (3 - 2 - 0 - 4)

The second in a series of two course of applied physical principles. Topics introduced in this course are heat and thermometry, and principles of force, motion, work, energy, and power. Prerequisite: PHY 1101.

PNE-1111 Introduction to Nursing (2 - 0 - 0 - 2)

This introductory area of the program is to acquaint the student with the role and function of a student practical nurse. An overview of the past in relationship to the present and future trends is included. The role of community resources in meeting health needs is explored and assistance is given in communication skills as they relate to nursing and interpersonal relations. Prerequisite: None.

PNE-1112 Fundamentals of Nursing (8 - 2 - 2 - 10)

This course provides an introduction to the care of patients through a study of the basic daily needs of all persons in sickness and health. Opportunities are provided for learning the principles of nursing. Basic skills for meeting patient needs are developed in laboratory practice. The student puts these skills into practice in the clinical area, under close instructor supervision. Prerequisite: None.

- PNE-1117 Nutrition (4 - 0 - 0 - 4)**
 Normal nutrition is taught in this course, as a basis for understanding the dietary needs of patients. Diet requirements for various age groups and the special needs during pregnancy and lactation are studied. Diet therapy is introduced. Prerequisite: None.
- *PNE-1120 Clinical I Medical - Surgical (0 - 0 - 15 - 5)**
 The portion of the program consists of care of selected patients in the hospital. Careful supervision is given the student to insure maximum opportunity to develop nursing skills. Assignments are correlated to classroom instruction. Ward classes and patient care studies are utilized to implement hospital experiences. Prerequisite: PNE 1112 and BIO 111.
- *PNE-1122 Medical - Surgical Nursing I (12 - 0 - 0 - 12)**
 This course is a beginning study of common illness conditions. Emphasis is placed on application of nursing principles to meet the needs of adult patients with varying degrees of illness and from different socio-economic backgrounds. Stress is placed on the nursing needs of patients with alternation of body functions resulting from disorders of body systems. Drug Therapy is included with disorders of each system. Prerequisite: PNE 1112 and BIO 111.
- *PNE-1123 Maternal and Infant Care (4 - 0 - 0 - 4)**
 This is a study of the physical and emotional changes as well as the components of good health care for the mother and infant from conception through the puerperium. Prerequisite: BIO 111.
- *PNE-1124 Pediatric Nursing I (2 - 0 - 0 - 2)**
 This course is a study of the normal child. Physical and psychological development in the various age groups is the chief content. Prerequisite: BIO 111.
- *PNE-1130 Clinical II Obstetrics and Pediatrics (0 - 0 - 21 - 7)**
 This course is planned to give the student opportunities to develop skills and apply the principles of nursing in the care of the maternity patient, the new born baby, and the sick child. Prerequisite: PNE 1120, 1123, and 1124.
- *PNE-1132 Medical-Surgical Nursing II (10 - 0 - 0 - 10)**
 A continuation of PNE 1122. The nurses responsibilities in relation to drug therapy is discussed. Sessions are structured to provide the student with experience in computing drug dosages and administering medications. Prerequisite: PNE 1122.
- *PNE-1134 Pediatric Nursing II (2 - 0 - 0 - 2)**
 This course is a continuation of PNE 1124 and is correlated with care of the sick child in the hospital. The purpose is to aid the student to recognize and meet the nursing needs of the sick child. Prerequisite: PNE 1124.
- *PNE-1140 Clinical III Medical - Surgical (0 - 0 - 21 - 7)**
 This is a continuation of PNE 1020 and provides the student additional opportunity to improve upon her nursing skills. Instructors supervise students in administration of medications. Prerequisite: PNE 1130.
- *PNE-1142 Medical-Surgical Nursing III (10 - 0 - 0 - 10)**
 Emphasis is placed on total patient care in this continuation of PNE 1132. Prerequisite: PNE 1132.
- *PNE-1144 Vocational Adjustment (2 - 0 - 0 - 2)**
 This course is structured to assist the individual in making the transition from the role of student to that of a functional member of the health team. Legal and vocational responsibilities are stressed. Prerequisite: 4th quarter status.
- PSM-100 Postal Service History and Organization (3 - 0 - 3)**
 A study of the modes of delivery of written communications and merchandise from earlier eras to the present. The present U.S. Postal Service organization will be studied in relationship to its own structure, functions, policies, procedures, and relationship to other governmental agencies. Prerequisite: none.

PSM-105 Mail Processing I**(2 - 4 - 4)**

Designed to provide the student with a knowledge of the interrelated factors involved in the collection of mail and its separation into categories. Scheduling and staffing techniques as well as the systems employed in destination separation and the control of quality of mail flow are studied. Also mail processing techniques devoted to the receipt processing and dispatch of second, third, and fourth class mail will be covered. The study will include definition of mail classification and rate determination, regulations regarding packaging size, shape, and sealing techniques and an analysis of the organization, functions, and layout of the Bulk Mailing System and a Bulk Mailing Center. Prerequisite: PSM 100.

PSM-200 Postal Service Labor Management**(3 - 0 - 3)**

An overview of Labor-Management relationships in the U.S. Postal Service. The study includes an analysis of laws and regulations pertaining to Labor-Management relationships, current industrial relations issues, description of the National and Local labor agreements, grievance and disciplinary policy and the function of the National Labor Relations Board. Prerequisite: BUS 233 and PSM 100.

PSM-201 Postal Service Support**(2 - 4 - 4)**

A study of the ancillary functions such as office, accounting, administrative, warehousing, and distribution services that support the principal functions of the Postal Service. The planning of revenues and facilities and the control of operations is emphasized. Prerequisite: PSM 200.

PSM-202 Postal Employee Services**(3 - 2 - 4)**

A detailed coverage of the operation and functions of the Postal Service Personnel office. A review of policies relative to selection, placement, training, and promotion of employees. Salary and wage schedules, insurance and retirement benefits, awards program, and safety and health policies and procedures are also studied. Prerequisite: PSM 201.

PSM-203 Postal Customer Services**(2 - 4 - 4)**

An overview of all services provided to postal customers. Includes all mailing services and non-postal services such as Passport Applications, Migratory Birds. Also provides training in customer relations and retail marketing techniques. Prerequisite: PSM 205.

PSM-205 Postal Delivery and Collection**(2 - 4 - 4)**

The problems in collecting mail from diverse points and delivering it to collection centers for processing and further delivery to multiple, diverse recipients are studied. The organizational structure and the physical facility of a metropolitan postal system are analyzed. Policies regarding all aspects of collection and distribution are reviewed. Prerequisite: PSM 105.

PSM-206 Postal Problems Analysis**(2 - 4 - 4)**

Situation analysis, problem analysis, decision analysis, consequence analysis, and solution analysis are applied to Postal Service problems. Problems related to personnel selection and evaluation, job classifications, communication, automation, and costs are explored. Prerequisite: PSM 202.

PSY-101 Introduction to Psychology**(3 - 0 - 3)**

This is an introductory survey of history and schools of thought in psychology, including topics such as intelligence, learning, motivation, and emotions. Prerequisite: None.

PSY-203 Abnormal Psychology**(3 - 0 - 3)**

This is a study of the major abnormal behavior patterns and way by which these aberrant patterns of thinking and acting are developed. Some attention is given to prevention of mental illness and the study of normal defense and escape mechanisms. Prerequisite: PSY 101.

PSY-206 Applied Psychology (3 - 0 - 3)

A study of the principles of psychology that will be of assistance in the understanding of inter-personal relations on the job. Motivation, feelings and emotions are considered with particular reference to on-the-job problems. Other topics investigated are employee selection, supervision, job satisfaction, and industrial conflicts. Attention is also given to personal and group dynamics so that the student may learn to apply the principles of mental hygiene to his adjustment problems as a worker and a member of the general community. Prerequisite: None.

PSY-1101 Human Relations (3 - 0 - 0 - 3)

A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation. Prerequisite: None.

RAD-101 Positioning I (1 - 1 - 2)

This first course in positioning will be to teach the beginning student the importance of the proper placement of the anatomical structure, the film and the tube. Students will learn that only with proper alignment of all 3 can a film of diagnostic quality be produced. The anatomy to be positioned during this quarter will be the upper and lower extremities.

RAD-102 Radiographic Technique I (2 - 2 - 3)

This course is designed to teach the beginning radiologic technology student the fundamentals of exposure and darkroom. Conditions necessary for x-ray production, fundamental factors in the production of a radiograph and qualities of a radiograph with emphasis being directed toward the controlling factors of the qualities will be covered. Darkroom principles will include darkroom construction, processing methods: manual and automatic, chemical properties of the developer and fixer, film construction, current media for holding x-ray film.

***RAD-104 Radiographic Terminology (1 - 0 - 1)**

This course applies to the specialty of Radiology; specifically to learn anatomical names of bones and organs of the body and other anatomical descriptive terms; to learn radiographic terms, prefixes and suffixes; to understand the meaning of such terms and the proper usage.

***RAD-105 Film Critique (1 - 0 - 1)**

Film Critique is a class that is held weekly for 8 quarters. Practical work sheets that are kept by all students are turned in and checked and students are required to pull those cases checked (which they have done by themselves) and bring these films to class. In class, these films are critically evaluated. Students name the gross bony anatomy, discuss the positioning and the technic. Radiologists are invited to attend these classes on a selected basis.

***RAD-106 Clinical Technique (0 - 24 - 8)**

During this first quarter, students are exposed to the patient, the various machines and other radiographic accessories. It is stressed to the student the importance of shielding all patients. Students learn to do routine examinations limited to chest and extremity work.

***RAD-110 Orientation to Radiology (1 - 0 - 1)**

This is an introductory course to teach Radiographic Technology students x-ray history, professional ethics and the type of relationship that should exist between student-Radiologist, student-technologist, student-patient. Methods of protection for the patient, the student and all other personnel in the radiology department will be taught. Office procedures as they are directly related to the radiology department will also be included.

***RAD-111 Positioning II (1 - 1 - 2)**

In Positioning II, the Axial skeleton will be studied. Special emphasis will be given to the positioning of the skull. Prerequisite: Minimum grade of "C" in RAD 101.

***RAD-112 Radiographic Technique II (1 - 1 - 2)**

This course is a continuation of RAD 102. After a review of the last quarter work, RAD 112 will begin with a general discussion of secondary radiation, its causes and methods of elimination. The Inverse Square Law will be discussed with the intent to have the students thoroughly understand this Law and the relationship it has on maintaining radiographic density. Prerequisite: RAD 102.

***RAD-113 Film Critique II (1 - 0 - 1)**

This quarter is a continuation of Film Critique I. Students continue to show films that they have taken alone. Repeats will be shown to discuss how the quality could have been improved. Prerequisite: RAD 105.

***RAD-114 Clinical Technique II (0 - 24 - 8)**

This is a continuation of RAD 106. As the students observe a greater variety of examinations, they are permitted to do these under the supervision of a staff technologist. Prerequisite: RAD 106.

***RAD-121 Positioning III (1 - 1 - 2)**

This will be a continuation of RAD 111. In addition to learning routine skull views, emphasis will be to teach the student how to do views of the visceral cranium. Prerequisite: RAD 111.

***RAD-123 Film Critique III (1 - 0 - 1)**

Students will continue to show their own work. The discussions will cover the anatomy, positioning and technic. Prerequisite: RAD 113.

***RAD-124 Clinical Technique III (0 - 26 - 9)**

As the students increase their knowledge of routine procedures, they will improve upon what they have learned and the variety of examinations that they are permitted to do alone will increase. Prerequisite: RAD 114.

***RAD-131 Positioning IV (1 - 1 - 2)**

All views of the visceral cranium not completed during RAD 121 will be finished at the beginning of this quarter. Emphasis will be geared to teach the student methods of doing special views of the skull. Prerequisite: RAD 121.

***RAD-132 Film Critique IV (1 - 0 - 1)**

This is a continued course in film critique. The variety of examinations that the students are able to do should increase and through the discussions of these cases, this course will become more meaningful. Prerequisite: RAD 123.

***RAD-134 Clinical Technique IV (0 - 30 - 10)**

In this fourth quarter of the student's training, they are encouraged to try the more difficult examinations. Emphasis is placed on all types of skull examinations. Prerequisite: RAD 124.

RAD-135 Radiological Anatomy I (2 - 0 - 2)

20. Radiological Anatomy is a course designed to acquaint the beginning student in Radiologic Technology with the entire skeletal system. This first quarter will cover the Appendicular Skeleton.

RAD-136 Radiological Anatomy II (2 - 0 - 2)

This course in Radiological Anatomy is a continuation of RAD 135. The Axial Skeleton will be covered this quarter with the greatest emphasis being placed on the skull and visceral cranium. Prerequisite: RAD 135.

RAD-200 Topographic Anatomy (1 - 0 - 1)

Review of anatomy from the standpoint of topographic anatomy and the relationship of organs to each other. Students will learn to locate body organs using surface landmarks.

***RAD-201 Positioning V—Emergency Technique (1 - 1 - 2)**

Students, during this quarter, will learn the techniques involved in the handling and radiographing the critically ill patient. Prerequisite: RAD 131.

***RAD-202 Film Critique V (1 - 0 - 1)**

Radiologist will be invited during this quarter to discuss positions of the skull and face. Prerequisite: RAD 132.

***RAD-203 Clinical Technique V (0 - 27 - 9)**

During this quarter, students are assigned to specialty areas: Therapy, Nuclear Medicine and Special Procedures where the students learn how to operate injectors, rapid cassette changers, Cobalt Unit and Scanners. Prerequisite: RAD 134.

***RAD-204 Advanced Radiologic Technique I (1 - 1 - 2)**

This quarter in Advanced Radiographic Technique will begin with an examination to ascertain how much of the material covered during the previous quarters has been retained. The test results would indicate the starting point for this course in which the students learn how to formulate a technic chart. A "term project" is assigned each student. This project involves formulating a specific technic, taking radiographs on Phantom to prove the technic is workable and writing up the entire project. Prerequisite: RAD 122.

***RAD-205 Medical Use of Radioisotopes (1 - 1 - 2)**

For the student to have a well rounded training in Radiologic Technology, some training in Nuclear Medicine becomes essential. Students taking this course review Radiation Physics and Radiation. Safety. Prerequisite: None.

***RAD-210 Positioning VI (1 - 1 - 2)**

In this course, students will be taught methods of handling infants and children. They will learn how to use the immobilization devices available and ways to improvise. Also included will be methods of compensating in technic. Prerequisite: RAD 201.

***RAD-211 Film Critique VI (1 - 0 - 1)**

During this quarter, students will not only demonstrate their own work, they will also be assigned specific reports to be given during film critique. Prerequisite: RAD 202.

***RAD-212 Clinical Technique VI (0 - 30 - 10)**

Students are permitted during this sixth quarter to do examinations alone. Staff technologists are required to observe. Prerequisite: RAD 203.

***RAD-213 Advance Radiologic Technique II (1 - 1 - 2)**

This is the final quarter for Radiographic Exposure. The first half of this quarter will be devoted to a general review. This review will cover all of the courses for the eight quarters of training. At the end of the quarter, the students will be given a comprehensive examination that will cover all phases of Radiologic Technology. Prerequisite: RAD 204.

***RAD-214 Equipment and Maintenance (1 - 0 - 1)**

This course familiarizes the student with the component circuits of an x-ray unit to permit detection and correction of simple difficulties which interfere with or prevent the proper function of the equipment or expensive breakdown. Prerequisite: PHY 105.

***RAD-215 A Survey of Medical and Surgical Diseases (1 - 0 - 1)**

This course acquaints the student with certain changes that occur in disease and injury and their application to Radiologic Technology.

***RAD-221 Positioning VII—Opaque Media (1 - 1 - 2)**

This course will teach the students two aspects of positioning: special procedures and opaque/contrast materials indicated for the various examinations. Students will also learn the basic types of contrast materials and the composition of each. Prerequisite: RAD 210.

***RAD-222 Film Critique VII (1 - 0 - 1)**

Department supervisors from the specialty areas will be invited to discuss the function of their particular area. Radiographs, Scans and Port films will be shown. Prerequisite: RAD 211.

***RAD-223 Clinical Technique VII (0 - 30 - 10)**

This 7th quarter of the Student's Clinical training gives the student increased responsibility in the clinical area. Staff technologists observe the student's ability to organize the work for the day. Student decide how the work will be accomplished and proceed to do the same. Prerequisite: RAD 212.

***RAD-225 Principles of Radiation Therapy and Protection (1 - 0 - 1)**

This course is designed to meet the basic minimal requirements for technologists in Radiation Therapy. It is slanted toward the student whose training is primarily in the field of diagnostic x-ray technology but whose subsequent employment may include duties in Radiation Therapy. The lectures are supplemented by at least one month of practical experience in the Therapy Department. The principles of intracavitary application of radioactive substances are presented with demonstration of applicator devices.

***RAD-231 Positioning VIII—Intra-Oral Radiography (1 - 1 - 2)**

This course will acquaint the student with the basic principles involved in intra-oral radiography. Students will learn the various types of dental film currently in use in most x-ray departments; they will also learn how to properly use dental equipment. The Dental Staff will assist with this course for the beginning lectures. Prerequisite: RAD 221.

***RAD-232 Film Critique VIII (1 - 0 - 1)**

During this last quarter, students will be given a practical examination and it will be these films that will be shown and graded during film critique. Prerequisite: RAD 222.

***RAD-233 Clinical Technique VIII (0 - 32 - 11)**

During this last quarter of clinical training, students are permitted to work in the area of Radiologic Technology that interest them the most. Prerequisite: RAD 223.

SOC-201 Sociology (3 - 0 - 3)

A course designed to create a knowledge and awareness of the problems in society today and to fit the students for involvement in those problems that affect their personal lives. Emphasis is on the nature, definition, and analysis of major social problems. While the primary stress is on the sociological point of view, information from other fields in the social sciences is incorporated. Prerequisite: None.

SOC-202 Contemporary Marriage and Family (3 - 0 - 3)

This course is designed to acquaint the student with the problems facing today's young married people and to investigate ways of solving these problems. Emphasis is placed on examining male and female roles, awareness of each others needs and desires, the importance of communicating and developing a healthy sexual relationship. Other areas such as buying a house, buying different kinds of insurance, shopping wisely, and securing loans will be discussed. Efforts will be made to involve community lending institutions, retail stores, social agencies, real estate and insurance firms by inviting representatives to speak to the class. Prerequisite: None.

SSC-100 Shorthand Speed Building (1 - 2 - 2)

A speed development and theory review course for learners who have already mastered Gregg or other shorthand theory but who need to maintain speeds at various speed building levels.

SSC-101 Basic Typewriting (2 - 3 - 3)

Introduction to the touch typewriting system with emphasis on correct techniques, mastery of the keyboard, and accuracy. Prerequisite: None.

SSC-102 Shorthand (3 - 2 - 4)

A beginning course in the theory and practice of reading and writing Gregg shorthand. Prerequisite: None.

SSC-103 Advanced Typewriting (2 - 3 - 3)

Instruction emphasizes the development of speed and accuracy with further mastery of correct typewriting techniques. These skills and techniques are applied in tabulation, manuscript typewriting, and correspondence. Prerequisite: SSC 101 or equivalent. Speed requirement: 40 words per minute for five minutes.

SSC-104 Shorthand (3 - 2 - 4)

Emphasis on dictation, speed building, and elementary transcription techniques. Prerequisite: SSC 102, or equivalent.

SSC-105 Expert Typewriting (2 - 3 - 3)

Emphasis on production typing problems. Attention to the development of the student's ability to function as an expert typist, producing mailable copies. The production units are tabulation, manuscript, correspondence, and business forms. Prerequisite: SSC 103 or the equivalent. Speed requirement: 50 words per minute for five minutes.

SSC-106 Shorthand (3 - 2 - 4)

Speed building and elementary transcription. Emphasis is on development of speed in dictation and accuracy in transcription. Prerequisite: SSC 104. Speed requirement 80 words a minute for five minutes.

SSC-108 Shorthand (3 - 2 - 4)

Reinforcement of speed building powers in shorthand. Emphasis on theory review and transcription skill building. This course is designed only for those students who began their shorthand training in the fall quarter. Prerequisite: SSC 106.

***SSC-111 Secretarial Machines (2 - 2 - 3)**

Instruction in the operation of bookkeeping-accounting machines, duplicating machines and other secretarial machines. Special emphasis is placed on dictating equipment and the proper use of these machines. Prerequisites: BUS 110 and SSC 101.

SSC-112 Filing (3 - 0 - 3)

Fundamentals of indexing and filing, combining theory and practice by the use of filing kits and guides. Alphabetic, Numeric, Geographic, and Subject Filing are covered. Prerequisite: None.

SSC-113 Personality Development for Secretaries (3 - 0 - 3)

Designed to help the student recognize the importance of the physical, intellectual, social, and emotional dimensions of personality. Emphasis is placed on grooming and methods of personality improvement. Prerequisite: None.

***SSC-127 Business English (3 - 0 - 3)**

A course designed specifically for secretarial students. Emphasis is placed upon punctuation skill building, spelling, and transcription of self-written shorthand notes at the typewriter. Prerequisite: ENG 101, SSC 101, SSC 102. (For secretarial students only).

SSC-205 Professional Typewriting (2 - 3 - 3)

Emphasis is placed on the development of individual production rates. The student learns the techniques needed in planning and in typing projects that closely approximate the work appropriate to the field of study. These projects include review of letter forms, methods of duplication, statistical tabulation and the typing of reports, manuscripts and legal documents. Prerequisite: SSC 105. Speed requirement: 60 words per minute for five minutes.

SSC-206 Dictation and Transcription I (3 - 2 - 4)

Develops the skill of taking dictation and of transcribing at the typewriter. Minimum dictation speed requirement: 100 wpm for five minutes. Transcription rate: 15 wpm on material dictated at 80 wpm. Prerequisite: SSC 106 &/or SSC 108.

***SSC-207 Secretarial Procedures & Administration I (3 - 2 - 4)**

Designed to acquaint the student with the responsibilities encountered by a secretary during her work day. These include the following: receptionist's duties, handling the mail, telephone techniques, travel information, telegrams, office records, purchasing of supplies, office organization, and insurance claims. Prerequisite: SSC 111, SSC 112, SSC 205, and SSC 206.

SSC-208 Dictation and Transcription II (3 - 2 - 4)

Covering materials appropriate to the course of study, the student develops accuracy, speed and a vocabulary that will enable her to meet the secretarial requirements of business and professional offices. Minimum dictation speed requirement: 110 wpm for five minutes. Transcription rate: 20 wpm on material dictated at 100 wpm. Prerequisite: SSC-206.

***SSC-209 Secretarial Procedures & Administration II (3 - 2 - 4)**

A continuation of the work encountered in the first course. Emphasis is placed on the student's work on individual problems and specialized work projects. Prerequisite: SSC 207.

SSC-210 Dictation and Transcription III (3 - 2 - 4)

Principally a speed building course, covering materials appropriate to the course of study, with emphasis on speed as well as accuracy. Minimum dictation speed requirement: 120 wpm for five minutes. Transcription rate: 25 wpm on material dictated at 100 wpm. Prerequisite: SSC-208.

SSC-271 Office Management (3 - 0 - 3)

Emphasis is on building good human relationships in management. The student will be involved in role playing, group consensus problem-solving sessions and case study analysis. Prerequisite: BUS 101.

SSC-272 Terminology (2 - 0 - 2)

Designed to increase the student's total number of words in both the active and passive vocabularies. Student may elect to devote some of the study to increasing awareness in medical and legal terminology.

***TDM-1201 Machine Processes (3 - 0 - 12 - 7)**

This course is designed to introduce the student to the tools, instruments, machines, and methods used in the tool and die shop. Basic die-making theory will be presented as it pertains to simple piercing, blanking, and bending dies. Each student will be subjected to a series of projects requiring extreme proficiency. Prerequisite: Machine Shop graduate or equivalent.

***TDM-1202 Machine Processes (3 - 0 - 12 - 7)**

This course is a study of certain individual parts that go into a die assembly. Students will go into detail concerning their making, assembly, functioning and properties necessary for satisfactory service. Continued project work will point out the requirements for precise work. Prerequisite: TDM 1201.

***TDM-1204 Machine Processes (3 - 0 - 12 - 7)**

This course is a continuation of TDM 1202 in which students will make a detailed study of die-block construction, strippers and stock guides, shedders and knock-outs, nest gages, and pushers. Project work has advanced to the finish grinding and assembly stage requiring high quality work from the student. Prerequisite: TDM 1202..

***TDM-1206 Machine Processes (3 - 0 - 12 - 7)**

A study of die stops completes the study of die components as presented in this course. Stock strip utilization and strip layout will be covered. Die sets and purchased parts will be discussed. A study of die assembly, set up practices, punch press operation, and a miscellaneous group of methods is necessary to complete this course. Prerequisite: TDM 1204.

***TDM-1207 Special Problems and Molding (3 - 4 - 0 - 5)**

This course will be used to subject the student to various operations within local industries. Numerous field trips will be scheduled to review operations of press room equipment, molding automatic assembly and the building and maintenance of that equipment. Plastics in general, compression, transfer and injection molding will be studied, including plastic terminology, blue prints and component parts. The student will operate compression and injection molding machines.

WLD-1101 Basic Welding (1 - 2 - 0 - 2)

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembly and operating the welding equipment. Practice will be given for surface welding and flame cutting. Emphasis on electric arc and gas welding methods applicable to mechanical repair work. Bronze welding and silver soldering may also be covered.

WLD-1102 Basic Welding (2 - 0 - 3 - 3)

Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembly and operating the welding equipment. Practice will be given for surface welding and flame cutting. Emphasis on electric arc and gas welding methods applicable to mechanical repair work. Bronze welding and silver soldering may also be covered.

WLD-1112 Mechanical Testing and Inspection (1 - 3 - 0 - 2)

The standard methods for mechanical testing of welds. The student is introduced to the various types of tests and testing procedures and performs the details of the test which will give adequate information as to the quality of the weld. Types of tests to be covered are: bend, destructive, free-bend, guided-bend, nick-tear, notched-bend, tee-bend, non-destructive, V-notch, Charpy impact, etc. Prerequisites: WLD 1120, WLD 1121.

WLD-1120 Oxyacetylene Welding and Cutting (3 - 0 - 12 - 7)

Introduction to the history of oxyacetylene welding, the principles of welding and cutting, nomenclature of the equipment, assembly of units. Welding procedures such as practice of puddling and carrying the puddle, running flat beads, butt welding in the flat, verticle and overhead position, brazing, hard and soft soldering. Safety procedures are stressed throughout the program of instruction in the use of tools and equipment. Students perform mechanical testing and inspection to determine quality of the welds. Prerequisite: None.

WLD-1121 ARC Welding (3 - 0 - 12 - 7)

The operation of AC transformers and DC motor generator arc welding sets. Studies are made of welding heats, polarities, and electrodes for use in joining various metal alloys by the arc welding process. After the student is capable of running beads, butt and fillet welds in all positions are made and tested in order that the student may detect his weaknesses in welding. Safety procedures are emphasized throughout the course in the use of tools and equipment. Prerequisite: None.

WLD-1122 Commercial and Industrial Practices (3 - 0 - 9 - 6)

Designed to build skills through practices in simulated industrial processes and techniques: sketching and laying out on paper the size and shape description, listing the procedure steps necessary to build the product, and then actually following these directions to build the product. Emphasis is placed on maintenance, repairing worn or broken parts by special welding applications, field welding and nondestructive tests and inspection. Prerequisites: WLD 1120, WLD 1121.

WLD-1123 Inert Gas Welding (1 - 0 - 3 - 2)

Introduction and practical operations in the use of inert-gas-shield arc welding. A study will be made of the equipment, operation, safety and practice in the various positions. A thorough study of such topics as: principles of operation, shielding gases, filled rods, process variations and applications, manual and automatic welding. Prerequisites: WLD 1120, WLD 1121.

WLD-1124 Pipe Welding**(3 - 0 - 12 - 7)**

Designed to provide practice in the welding of pressure piping in the horizontal, vertical, and horizontal fixed position using shield metal arc welding processes according to Sections VIII and IX of the ASME code. Prerequisite: WLD 1121.

WLD-1125 Certification practices**(3 - 0 - 6 - 5)**

This course involves practice in welding the various materials to meet certification standards. The student uses various tests including the guided bend and the tensile strength tests to check the quality of his work. Emphasis is placed on attaining skill in producing quality welds. Prerequisites: WLD-1120, WLD 1121, WLD 1123, WLD 1124.



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DIVISION OF HOSPITALITY EDUCATION

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